



FINAL DRAFT 12/31/84  
SITE INSPECTION REPORT  
AND HAZARDOUS RANKING SYSTEM MODEL  
LCP CHEMICALS  
LINDEN, NEW JERSEY

PREPARED UNDER

TECHNICAL DIRECTIVE DOCUMENT NO.  
CONTRACT NO. 68-01-6699  
02-8403-54A


FOR THE

ENVIRONMENTAL SERVICES DIVISION  
U.S. ENVIRONMENTAL PROTECTION AGENCY

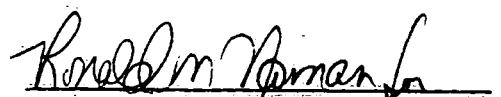
DECEMBER 31, 1984

NUS CORPORATION  
SUPERFUND DIVISION

SUBMITTED BY

  
JOSEPH CATTAFE  
PROJECT MANAGER

REVIEWED/APPROVED BY

  
TERRY A. RITTER  
REGIONAL PROJECT MANAGER

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**POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
EXECUTIVE SUMMARY**

<u>LCP Chemicals</u>	<u>D079303020</u>
Site Name	EPA Site ID Number
<u>Linden, New Jersey</u>	<u>02-8403-54A</u>
Address	TDD Number

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**SITE DESCRIPTION**

LCP Chemicals, a division of LCP Chemicals and Plastics, Inc., operates a chlorine gas production facility at the foot of S. Wood Avenue in Linden, New Jersey. Chlorine gas is produced by the electrolysis of a sodium chloride brine. The process involved the use of a mercury cell for a period of several years during the 1970's. Sodium hydroxide (caustic soda) sludge, a biproduct of this process, was subsequently contaminated with mercury. The sludge was stored in a lagoon which was located between the production plant and S. Branch Creek to the east. LCP attempted to recover some of the mercury in an experimental chem-fix lagoon which was constructed at the edge of the main lagoon. The project was abandoned, and LCP changed their production procedures to eliminate the hazardous mercury component from the process.

In 1982 the US EPA ordered the LCP plant closed until the lagoon was secured and the hazard to plant workers was eliminated. LCP proposed to excavate the experimental lagoon and place the excavated material along with all mercury contaminated waste into the brine-sludge lagoon. The lagoon would subsequently be capped with an impermeable layer of clay. The proposal was accepted and closure procedures were completed during the fall of 1984.

The landfill covers an area of 62,500 square feet and rises to a point approximately 15 feet above S. Branch Creek, a tributary to the Arthur Kill River. LCP has installed five groundwater monitoring wells around the landfill. LCP samples these wells semi-annually and analyzes the samples for a list of 14 substances.

**HAZARD RANKING SCORE:**  $S_M - 13.1$   $S_{FE} - 18.89$   $S_{DC} - 20.83$

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Prepared by: J. S. Cattafe  
of NUS Corporation

Date: 5/21/85



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

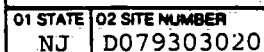
01 STATE NJ 02 SITE NUMBER D079303020

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site) LCP Chemicals, Inc.		02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER Foot of S. Wood Avenue			
03 CITY Linden	04 STATE NJ	05 ZIP CODE 07036	06 COUNTY Union	07 COUNTY CODE 039	08 CONG DIST 15
09 COORDINATES LATITUDE 40° 36' 03" N LONGITUDE 074° 12' 32" W		10 TYPE OF OWNERSHIP (Check one) <input checked="" type="checkbox"/> A. PRIVATE <input type="checkbox"/> B. FEDERAL <input type="checkbox"/> C. STATE <input type="checkbox"/> D. COUNTY <input type="checkbox"/> E. MUNICIPAL <input type="checkbox"/> F. OTHER <input type="checkbox"/> G. UNKNOWN			

III. INSPECTION INFORMATION

01 DATE OF INSPECTION 9 / 27 / 84 MONTH DAY YEAR		02 SITE STATUS <input checked="" type="checkbox"/> ACTIVE <input type="checkbox"/> INACTIVE	03 YEARS OF OPERATION 1900   1984 BEGINNING YEAR ENDING YEAR		
04 AGENCY PERFORMING INSPECTION (Check all that apply) <input type="checkbox"/> A. EPA <input checked="" type="checkbox"/> B. EPA CONTRACTOR NUS Corp. <input type="checkbox"/> C. MUNICIPAL <input type="checkbox"/> D. MUNICIPAL CONTRACTOR <input type="checkbox"/> E. STATE <input type="checkbox"/> F. STATE CONTRACTOR <input type="checkbox"/> G. OTHER (Name of firm) (Specify)					
05 CHIEF INSPECTOR J.S. Cattafe		06 TITLE Hydrogeologist		07 ORGANIZATION NUS Corp.	08 TELEPHONE NO. (201) 225-6160
09 OTHER INSPECTORS D. Farley		10 TITLE Hydrogeologist		11 ORGANIZATION NUS Corp.	12 TELEPHONE NO. (201) 225-6160
M. Nicholas		Hydrogeologist		NUS Corp.	(201) 225-6160
G. Burchette		Hydrogeologist		NUS Corp.	(201) 225-6160
					( )
					( )
13 SITE REPRESENTATIVES INTERVIEWED Mark E. McLaughlin		14 TITLE Technical Supervisor	15 ADDRESS P.O. Box 484		16 TELEPHONE NO. (201) 862-1666
					( )
					( )
					( )
					( )
					( )
					( )
17 ACCESS GAINED BY (Check one) <input checked="" type="checkbox"/> PERMISSION <input type="checkbox"/> WARRANT		18 TIME OF INSPECTION 1000-1640 HRS.		19 WEATHER CONDITIONS Partly Cloudy, 70° - 75° F, Windy	
IV. INFORMATION AVAILABLE FROM					
01 CONTACT Mark Haulenbeek		02 OF (Agency/Organization) U.S. EPA Region II			03 TELEPHONE NO. (201) 321-6685
04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM J.S. Cattafe		05 AGENCY	06 ORGANIZATION NUS CORP.	07 TELEPHONE NO. 201-225-6160	08 DATE 12 / 10 / 84 MONTH DAY YEAR



<input checked="" type="checkbox"/> A. TOXIC	<input type="checkbox"/> E. SOLUBLE	<input type="checkbox"/> I. HIGHLY VOLATILE
<input checked="" type="checkbox"/> B. CORROSIVE	<input type="checkbox"/> F. INFECTIOUS	<input type="checkbox"/> J. EXPLOSIVE
<input type="checkbox"/> C. RADIOACTIVE	<input type="checkbox"/> G. FLAMMABLE	<input checked="" type="checkbox"/> K. REACTIVE
<input checked="" type="checkbox"/> D. PERSISTENT	<input type="checkbox"/> H. IGNITABLE	<input checked="" type="checkbox"/> L. INCOMPATIBLE
		<input type="checkbox"/> M. NOT APPLICABLE

## EPA FORM 2070-13 (7-81)



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION  
01 STATE 02 SITE NUMBER  
NJ D07930320

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION 02 ☐ OBSERVED (DATE: \_\_\_\_\_) ☒ POTENTIAL ☐ ALLEGED  
03 POPULATION POTENTIALLY AFFECTED: 200,000 04 NARRATIVE DESCRIPTION

The potential for groundwater contamination exists as the closed Brine Sludge Lagoon is not lined.

01 ☒ B. SURFACE WATER CONTAMINATION 02 ☐ OBSERVED (DATE: \_\_\_\_\_) ☒ POTENTIAL ☐ ALLEGED  
03 POPULATION POTENTIALLY AFFECTED: Unknown 04 NARRATIVE DESCRIPTION

The potential exists if the Brine Sludge Lagoon has not been properly closed, and leachate runs into S. Branch Creek. The creek flows into the Arthur Kill which is used for recreational purposes.

01 ☒ C. CONTAMINATION OF AIR 02 ☐ OBSERVED (DATE: \_\_\_\_\_) ☒ POTENTIAL ☐ ALLEGED  
03 POPULATION POTENTIALLY AFFECTED: Unknown 04 NARRATIVE DESCRIPTION

The potential exists via airborne dust, if the Chem-Fix lagoon was not completely excavated.

01 ☐ D. FIRE EXPLOSIVE CONDITIONS 02 ☐ OBSERVED (DATE: \_\_\_\_\_) ☐ POTENTIAL ☐ ALLEGED  
03 POPULATION POTENTIALLY AFFECTED: None 04 NARRATIVE DESCRIPTION

No potential exists for fire or explosion caused by the closed Brine Sludge Lagoon.

01 ☒ E. DIRECT CONTACT 02 ☐ OBSERVED (DATE: \_\_\_\_\_) ☒ POTENTIAL ☐ ALLEGED  
03 POPULATION POTENTIALLY AFFECTED: 100 04 NARRATIVE DESCRIPTION

The potential exist for worker exposure if the Brine Sludge Lagoon was not properly closed, or if the contents of the "Chem-Fix" lagoon were not completely removed. A fence surrounds the site with a security guard house to prevent the general public from entering onto the property.

01 ☒ F. CONTAMINATION OF SOIL 02 ☐ OBSERVED (DATE: \_\_\_\_\_) ☒ POTENTIAL ☐ ALLEGED  
03 AREA POTENTIALLY AFFECTED: 1.5 Acres 04 NARRATIVE DESCRIPTION  
(Acres)

The potential exists for soil contamination for the same reasons listed in section E Direct contact.

01 ☐ G. DRINKING WATER CONTAMINATION 02 ☐ OBSERVED (DATE: \_\_\_\_\_) ☐ POTENTIAL ☐ ALLEGED  
03 POPULATION POTENTIALLY AFFECTED: None 04 NARRATIVE DESCRIPTION

No potential exists for drinking water contamination. Linden receives its drinking water from reservoirs in Clinton, N.J. approximately 30 miles away.

01 ☒ H. WORKER EXPOSURE/INJURY 02 ☐ OBSERVED (DATE: \_\_\_\_\_) ☒ POTENTIAL ☐ ALLEGED  
03 WORKERS POTENTIALLY AFFECTED: <100 04 NARRATIVE DESCRIPTION

The closed Brine Sludge Lagoon is not within LCP's main compound, and approximately 100 feet from the main plant.

01 ☐ I. POPULATION EXPOSURE/INJURY 02 ☐ OBSERVED (DATE: \_\_\_\_\_) ☐ POTENTIAL ☐ ALLEGED  
03 POPULATION POTENTIALLY AFFECTED: None 04 NARRATIVE DESCRIPTION

No potential exists for exposure to the general public. Site security includes a fence on three sides, S. Branch Creek on the fourth and a guard house at the front gate.



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE NJ 02 SITE NUMBER D79303020

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☒ J. DAMAGE TO FLORA  
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☒ POTENTIAL

☐ ALLEGED

The potential exists for contamination of estuarine flora.

01 ☒ K. DAMAGE TO FAUNA  
04 NARRATIVE DESCRIPTION (include name(s) of species)

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☒ POTENTIAL

☐ ALLEGED

The potential exists for contamination of estuarine fauna.

01 ☒ L. CONTAMINATION OF FOOD CHAIN  
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☒ POTENTIAL

☐ ALLEGED

The potential exists via surface water contamination.

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES  
(Spills, Runoff, Standing liquids, Leaking drums)

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: None

04 NARRATIVE DESCRIPTION

No problems were observed on the Site Inspection 9/27/84. The facility appeared to be properly capped and graded. Rainwater runoff features and vegetation were being installed on that date.

01 ☐ N. DAMAGE TO OFFSITE PROPERTY  
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

No potential exists.

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs  
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

No potential exists.

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING  
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

The excavation of the "Chem-Fix lagoon and the closure of the Brine Sludge lagoon were both permitted and inspected by the NJDEP and the U.S. EPA.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

An oily leachate was observed near S. Branch Creek which appeared to be coming from a series of large tanks on the property just south of LCP chemicals.

III. TOTAL POPULATION POTENTIALLY AFFECTED: \_\_\_\_\_

IV. COMMENTS

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis reports)

NUS Region II FIT Files. LCP Chemicals - Site Inspection and Preliminary Assessment  
NJDEP Files.



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION  
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION  
01 STATE 02 SITE NUMBER  
NJ D079303020

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
<input type="checkbox"/> A. NPDES				
<input type="checkbox"/> B. UIC				
<input type="checkbox"/> C. AIR				
<input type="checkbox"/> D. RCRA				
<input type="checkbox"/> E. RCRA INTERIM STATUS				
<input type="checkbox"/> F. SPCC PLAN				
<input type="checkbox"/> G. STATE (Specify)				
<input type="checkbox"/> H. LOCAL (Specify)				
<input type="checkbox"/> I. OTHER (Specify)				
<input type="checkbox"/> J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE	04 TREATMENT (Check all that apply)	05 OTHER
<input checked="" type="checkbox"/> A. SURFACE IMPOUNDMENT	30,900	Cubic Yards	<input type="checkbox"/> A. INCENERATION	<input checked="" type="checkbox"/> A. BUILDINGS ON SITE
<input type="checkbox"/> B. PILES			<input type="checkbox"/> B. UNDERGROUND INJECTION	
<input type="checkbox"/> C. DRUMS, ABOVE GROUND			<input type="checkbox"/> C. CHEMICAL/PHYSICAL	
<input type="checkbox"/> D. TANK, ABOVE GROUND			<input type="checkbox"/> D. BIOLOGICAL	
<input type="checkbox"/> E. TANK, BELOW GROUND			<input type="checkbox"/> E. WASTE OIL PROCESSING	
<input type="checkbox"/> F. LANDFILL			<input type="checkbox"/> F. SOLVENT RECOVERY	
<input type="checkbox"/> G. LANDFARM			<input type="checkbox"/> G. OTHER RECYCLING/RECOVERY	
<input type="checkbox"/> H. OPEN DUMP			<input type="checkbox"/> H. OTHER (Specify)	
<input type="checkbox"/> I. OTHER (Specify)				06 AREA OF SITE (Acres)

07 COMMENTS

Contents of an experimental "Chem-Fix" lagoon were excavated and placed into the Brine-Sludge Lagoon and the lagoon was closed. A clay cap, drainage management features and vegetative cover were installed between 1982 and 1984.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

☒ A. ADEQUATE, SECURE    ☐ B. MODERATE    ☐ C. INADEQUATE, POOR    ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

Closure procedures for the 62,500 sq. ft. Brine Sludge Lagoon consisted of compaction and dewatering of all waste, a 2 ft. cap of compacted clay, and final cover of soil and vegetation. A rip-rap berm was installed to manage site drainage and inhibit erosion. The facility is approximately 12 ft. above the 100-year flood stage of the Arthur Kill River.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☐ YES ☒ NO  
02 COMMENTS

Waste is securely closed in the Brine-Sludge Lagoon.

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

NUS Reigon II Fit Files - LCP Chemicals, Site Inspection and Preliminary Assessment. NJDEP Files.



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE 02 SITE NUMBER  
NJ D079303020

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)	02 STATUS	03 DISTANCE TO SITE																	
<table><tr><td>SURFACE</td><td>WELL</td></tr><tr><td>COMMUNITY A. <input checked="" type="checkbox"/></td><td>B. <input type="checkbox"/></td></tr><tr><td>NON-COMMUNITY C. <input type="checkbox"/></td><td>D. <input type="checkbox"/></td></tr></table>	SURFACE	WELL	COMMUNITY A. <input checked="" type="checkbox"/>	B. <input type="checkbox"/>	NON-COMMUNITY C. <input type="checkbox"/>	D. <input type="checkbox"/>	<table><tr><td>ENDANGERED</td><td>AFFECTED</td><td>MONITORED</td></tr><tr><td>A. <input type="checkbox"/></td><td>B. <input type="checkbox"/></td><td>C. <input checked="" type="checkbox"/></td></tr><tr><td>D. <input type="checkbox"/></td><td>E. <input type="checkbox"/></td><td>F. <input type="checkbox"/></td></tr></table>	ENDANGERED	AFFECTED	MONITORED	A. <input type="checkbox"/>	B. <input type="checkbox"/>	C. <input checked="" type="checkbox"/>	D. <input type="checkbox"/>	E. <input type="checkbox"/>	F. <input type="checkbox"/>	<table><tr><td>A. 30 (mi)</td></tr><tr><td>B. (mi)</td></tr></table>	A. 30 (mi)	B. (mi)
SURFACE	WELL																		
COMMUNITY A. <input checked="" type="checkbox"/>	B. <input type="checkbox"/>																		
NON-COMMUNITY C. <input type="checkbox"/>	D. <input type="checkbox"/>																		
ENDANGERED	AFFECTED	MONITORED																	
A. <input type="checkbox"/>	B. <input type="checkbox"/>	C. <input checked="" type="checkbox"/>																	
D. <input type="checkbox"/>	E. <input type="checkbox"/>	F. <input type="checkbox"/>																	
A. 30 (mi)																			
B. (mi)																			

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)				
<input type="checkbox"/> A. ONLY SOURCE FOR DRINKING		<input type="checkbox"/> B. DRINKING (Other sources available) COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available)		<input checked="" type="checkbox"/> C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available)
		D. NOT USED, UNUSEABLE		
02 POPULATION SERVED BY GROUND WATER 0		03 DISTANCE TO NEAREST DRINKING WATER WELL N/A (mi)		
04 DEPTH TO GROUNDWATER 6 (ft)	05 DIRECTION OF GROUNDWATER FLOW To Arthur Kill	06 DEPTH TO AQUIFER OF CONCERN 40-50 (ft)	07 POTENTIAL YIELD OF AQUIFER 626,400 (gpd)	08 SOLE SOURCE AQUIFER <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO

09 DESCRIPTION OF WELLS (Including usage, depth, and location relative to population and buildings).  
Five monitoring wells have been installed around the closed lagoon. Three wells are situated along So. Branch Creek to the east, one well lies northwest of the lagoon. The wells are constructed of two-inch PVC riser pipe and steel outer casings with locking caps.

10 RECHARGE AREA	11 DISCHARGE AREA
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO COMMENTS S. Branch Creek exhibits a 2-foot tidal influence which affects the local groundwater gradient during	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO COMMENTS S. Branch Creek is a tidal creek and changes the local groundwater gradient at high and low tide stages.

IV. SURFACE WATER periods of high and low tide.

01 SURFACE WATER USE (Check one)		
<input type="checkbox"/> A. RESERVOIR, RECREATION DRINKING WATER SOURCE	<input type="checkbox"/> B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES	<input checked="" type="checkbox"/> C. COMMERCIAL, INDUSTRIAL
<input type="checkbox"/> D. NOT CURRENTLY USED		
02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER		
NAME:	AFFECTED	DISTANCE TO SITE
Arthur Kill River	<input type="checkbox"/>	.1 (mi)
S. Branch Creek	<input type="checkbox"/>	0 (mi)
	<input type="checkbox"/>	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN			02 DISTANCE TO NEAREST POPULATION
ONE (1) MILE OF SITE A. 7 NO. OF PERSONS	TWO (2) MILES OF SITE B. 20,011 NO. OF PERSONS	THREE (3) MILES OF SITE C. 62,527 NO. OF PERSONS	1.5 (mi)
03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE 7178			04 DISTANCE TO NEAREST OFF-SITE BUILDING .2 (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)  
The area surrounding the site within a 1.5 mile radius is completely industrialized. Chemical and Oil companies maintain plants or storage facilities over much of the area. The remaining land is undeveloped marsh on the flood plain adjacent to the Arthur Kill River. The New Jersey State Turnpike runs within 3/4 mile of the site. Immediately outside the 1.5 mile radius are residential and densely populated urban areas of West Carteret, Linden and Elizabeth.



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE NJ 02 SITE NUMBER D09303020

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A.  $10^{-6} - 10^{-8}$  cm/sec ☒ B.  $10^{-4} - 10^{-6}$  cm/sec ☐ C.  $10^{-4} - 10^{-3}$  cm/sec ☐ D. GREATER THAN  $10^{-3}$  cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

☐ A. IMPERMEABLE (Less than  $10^{-6}$  cm/sec) ☐ B. RELATIVELY IMPERMEABLE ( $10^{-4} - 10^{-6}$  cm/sec) ☒ C. RELATIVELY PERMEABLE ( $10^{-2} - 10^{-4}$  cm/sec) ☐ D. VERY PERMEABLE (Greater than  $10^{-2}$  cm/sec)

03 DEPTH TO BEDROCK

40-50 (ft)

04 DEPTH OF CONTAMINATED SOIL ZONE

Unknown (ft)

05 SOIL pH

7

06 NET PRECIPITATION

12 (in)

07 ONE YEAR 24 HOUR RAINFALL

2.5 (in)

08 SLOPE

SITE SLOPE

25 %

DIRECTION OF SITE SLOPE

Flat-lying

TERRAIN AVERAGE SLOPE

0 %

09 FLOOD POTENTIAL

SITE IS IN 100 YEAR FLOODPLAIN

10

☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE

A. 0 (mi)

OTHER

B. 0 (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

0 (mi)

ENDANGERED SPECIES: Peregrin Falcon

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL

RESIDENTIAL AREAS; NATIONAL/STATE PARKS,  
FORESTS, OR WILDLIFE RESERVES

AGRICULTURAL LANDS  
PRIME AG LAND AG LAND

A. 0 (mi)

B. 1.5 (mi)

C. >10 (mi) D. >10 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The closed Brine Sludge Lagoon is situated east of the main plant. So. Branch Creek borders the landfill on the northern and eastern sides. An access road circles the landfill approximately seven feet above the high tide level of S. Branch Creek. The closed lagoon covers an area of 62,900 sq. feet and rises 12 to 15 feet above the creek. Five monitoring wells are located around the landfill. Three wells are situated along So. Branch Creek, a fourth is northwest of the landfill, and the fifth is southwest and across the access road. The surrounding topography is flat-lying and the Landfill rises at an angle of repose to a point approximately twelve feet above grade.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

NUS Region II FIT Files - Site Inspection, Preliminary Assessment.



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER  
NJ D079303020

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	3	organic - Rockwell Int, inorganic - JTC	
SURFACE WATER	2	organic - Rockwell Int, inorganic - JTC	
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL	2	organic and inorganic - JTC	
VEGETATION			
OTHER Sediment	2	organic and inorganic - JTC	

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
Mercury Detector	No levels above background were recorded (NUS Detector inoperable)
	LCP supplied identical model in working condition.
HCL Draeger Tube	The apparatus indicated that there was no HCL in the ambient
	air at the site on 9/27/84.

IV. PHOTOGRAPHS AND MAPS

01 TYPE <input checked="" type="checkbox"/> GROUND <input type="checkbox"/> AERIAL	02 IN CUSTODY OF EPA - photo log attached to Site Inspection Report <small>Name of organization or individual</small>
03 MAPS <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	04 LOCATION OF MAPS A sketch map was compiled at the Site Inspection and is attached to the Site Inspection Report.

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

A field logbook, including sampling team members, weather conditions, samples collected and a chronological list of events which took place during the site inspection. Field Notebook #1017 TDD #02-8403-54A

VI. SOURCES OF INFORMATION (Cite specific references, e.g., Site files, sample analysis reports)

NUS Region II FIT Files - Site Inspection.



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 7 - OWNER INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER  
NJ D079303020

II. CURRENT OWNER(S)

01 NAME LCP Chemicals, Inc			02 D+B NUMBER		08 NAME LCP Chemicals and Plastics			09 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.) P.O. Box 484			04 SIC CODE 2812		10 STREET ADDRESS (P.O. Box, RFD #, etc.)			11 SIC CODE	
05 CITY Linden		06 STATE N.J.	07 ZIP CODE 07036		12 CITY		13 STATE	14 ZIP CODE	
01 NAME			02 D+B NUMBER		08 NAME			09 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE		10 STREET ADDRESS (P.O. Box, RFD #, etc.)			11 SIC CODE	
05 CITY		06 STATE	07 ZIP CODE		12 CITY		13 STATE	14 ZIP CODE	
01 NAME			02 D+B NUMBER		08 NAME			09 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE		10 STREET ADDRESS (P.O. Box, RFD #, etc.)			11 SIC CODE	
05 CITY		06 STATE	07 ZIP CODE		12 CITY		13 STATE	14 ZIP CODE	
01 NAME			02 D+B NUMBER		08 NAME			09 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE		10 STREET ADDRESS (P.O. Box, RFD #, etc.)			11 SIC CODE	
05 CITY		06 STATE	07 ZIP CODE		12 CITY		13 STATE	14 ZIP CODE	
01 NAME			02 D+B NUMBER		08 NAME			09 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE		10 STREET ADDRESS (P.O. Box, RFD #, etc.)			11 SIC CODE	
05 CITY		06 STATE	07 ZIP CODE		12 CITY		13 STATE	14 ZIP CODE	

III. PREVIOUS OWNER(S) (List most recent first)

01 NAME GAF			02 D+B NUMBER		01 NAME			02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE		03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE	
05 CITY		06 STATE	07 ZIP CODE		05 CITY		06 STATE	07 ZIP CODE	
01 NAME Dupont			02 D+B NUMBER		01 NAME			02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE		03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE	
05 CITY		06 STATE	07 ZIP CODE		05 CITY		06 STATE	07 ZIP CODE	
01 NAME			02 D+B NUMBER		01 NAME			02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE		03 STREET ADDRESS (P.O. Box, RFD #, etc.)			04 SIC CODE	
05 CITY		06 STATE	07 ZIP CODE		05 CITY		06 STATE	07 ZIP CODE	

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

NUS Region II FIT Files - Site Inspection, Preliminary Assessment  
Telephone conversation with Linden City Clerk's Office.



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER  
NJ D079303020

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME LCP Chemicals	02 D+B NUMBER	10 NAME LCP Chemicals and Plastics	11 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.) P.O. Box 484	04 SIC CODE 2812	12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE
05 CITY Linden	06 STATE NJ	07 ZIP CODE 07036	14 CITY 15 STATE 16 ZIP CODE
08 YEARS OF OPERATION 1970- Present	09 NAME OF OWNER LCP Chemicals		

OPERATOR'S PARENT COMPANY (If applicable)

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

01 NAME GAF	02 D+B NUMBER	10 NAME	11 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.) Foot of S. Wood Avenue	04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE
05 CITY Linden	06 STATE NJ	07 ZIP CODE 07036	14 CITY 15 STATE 16 ZIP CODE
08 YEARS OF OPERATION 1942 - 1970	09 NAME OF OWNER DURING THIS PERIOD GAF		
01 NAME Dupont	02 D+B NUMBER	10 NAME	11 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	14 CITY 15 STATE 16 ZIP CODE
08 YEARS OF OPERATION 1900 - 1942	09 NAME OF OWNER DURING THIS PERIOD Dupont		
01 NAME	02 D+B NUMBER	10 NAME	11 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	14 CITY 15 STATE 16 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD		

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

NUS Region II FIT Files - Site Inspection, Preliminary Assessment  
Telephone conversation with Linden City Clerk's Office.



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER  
NJ D079303020

II. ON-SITE GENERATOR

01 NAME LCP Chemicals	02 D+B NUMBER		
03 STREET ADDRESS (P.O. Box, RFD #, etc.) P.O. Box 484	04 SIC CODE 2812		
05 CITY Linden	06 STATE NJ	07 ZIP CODE 07036	

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE 07 ZIP CODE	05 CITY	06 STATE 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE 07 ZIP CODE	05 CITY	06 STATE 07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE 07 ZIP CODE	05 CITY	06 STATE 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE 07 ZIP CODE	05 CITY	06 STATE 07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

NUS Region II FIT Files - Site Inspection, Preliminary Assessment  
Telephone conversation with Linden City Clerks Office.



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 10 - PAST RESPONSE ACTIVITIES

I IDENTIFICATION

01 STATE NJ 02 SITE NUMBER D079303020

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED  
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED  
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED  
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ D. SPILLED MATERIAL REMOVED  
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☒ E. CONTAMINATED SOIL REMOVED  
04 DESCRIPTION

02 DATE 9/9/83

03 AGENCY EPA, NJDEP

The contents of an experimental "Chem-Fix" Lagoon were excavated and placed in the Brine Sludge Lagoon.

01 ☐ F. WASTE REPACKAGED  
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ G. WASTE DISPOSED ELSEWHERE  
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☒ H. ON SITE BURIAL  
04 DESCRIPTION

02 DATE 8/84

03 AGENCY

The Brine Sludge Lagoon was dewatered, compacted and capped. Operations proceeded with EPA and DEP approval.

01 ☐ I. IN SITU CHEMICAL TREATMENT  
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ J. IN SITU BIOLOGICAL TREATMENT  
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ K. IN SITU PHYSICAL TREATMENT  
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ L. ENCAPSULATION  
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ M. EMERGENCY WASTE TREATMENT  
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ N. CUTOFF WALLS  
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☒ O. EMERGENCY DIKING/SURFACE WATER DIVERSION  
04 DESCRIPTION

02 DATE 1983

03 AGENCY NJDEP

The DEP directed that the HCl tanks be diked.

01 ☐ P. CUTOFF TRENCHES/SUMP  
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ Q. SUBSURFACE CUTOFF WALL  
04 DESCRIPTION

02 DATE

03 AGENCY



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE NJ 02 SITE NUMBER D079303020

II PAST RESPONSE ACTIVITIES (Continued)

01 ☐ R. BARRIER WALLS CONSTRUCTED  
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☒ S. CAPPING/COVERING  
04 DESCRIPTION

02 DATE 10/84

03 AGENCY EPA NJDEP

A 2 foot compacted clay cap with vegetative cover and drainage features was installed.

01 ☐ T. BULK TANKAGE REPAIRED  
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ U. GROUT CURTAIN CONSTRUCTED  
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ V. BOTTOM SEALED  
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ W. GAS CONTROL  
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ X. FIRE CONTROL  
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ Y. LEACHATE TREATMENT  
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ Z. AREA EVACUATED  
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☒ 1. ACCESS TO SITE RESTRICTED  
04 DESCRIPTION

02 DATE 1982 - 1984

03 AGENCY EPA NJDEP

Plant operations were shut down during closure of the Brine Sludge and Chem-Fix Lagoon.

01 ☒ 2. POPULATION RELOCATED  
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ 3. OTHER REMEDIAL ACTIVITIES  
04 DESCRIPTION

02 DATE 1982-1983

03 AGENCY

Five monitoring wells were installed around the Brine Sludge and Chem-Fix Lagoons.

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

NUS, Region II FIT Files - Site Inspection and Preliminary Assessment.  
NJDEP Files



POTENTIAL HAZARDOUS WASTE SITE  
SITE INSPECTION REPORT  
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NJ	D079303020

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☒ YES ☐ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION:

Following shut down of plant activities in 1982, LCP has carried out all DEP and EPA directives including diking, and closure of the Chem-Fix and Brine Sludge Lagoons. LCP presently conducts a semi-annual sampling program and analyzes for an abbreviated list of substances. A xerox copy of this list is attached.

III. SOURCES OF INFORMATION (Give specific references, e.g., state files, sample analysis, reports)

NUS Region II FIT Files - Preliminary Assessment.  
NJDEP Files.

**APPENDIX A**

**MAPS AND PHOTOS**

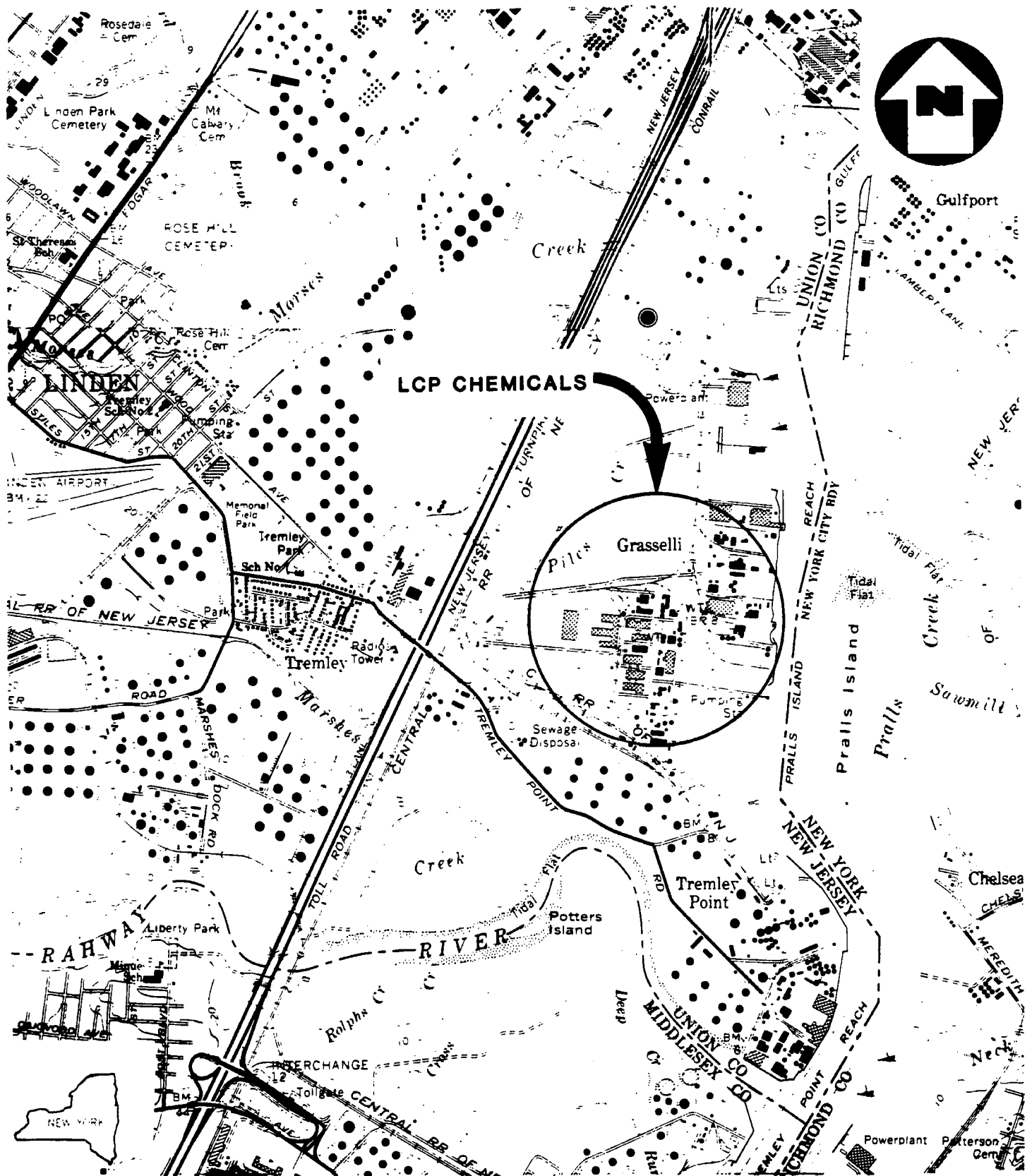
### **MAPS AND PHOTOS**

Figure A-1 provides a Site Location Map.

Figure A-2 provides a Site Map.

Figure A-3 provides a Sample Location Map.

Exhibit A-1 provides photographs of the site.



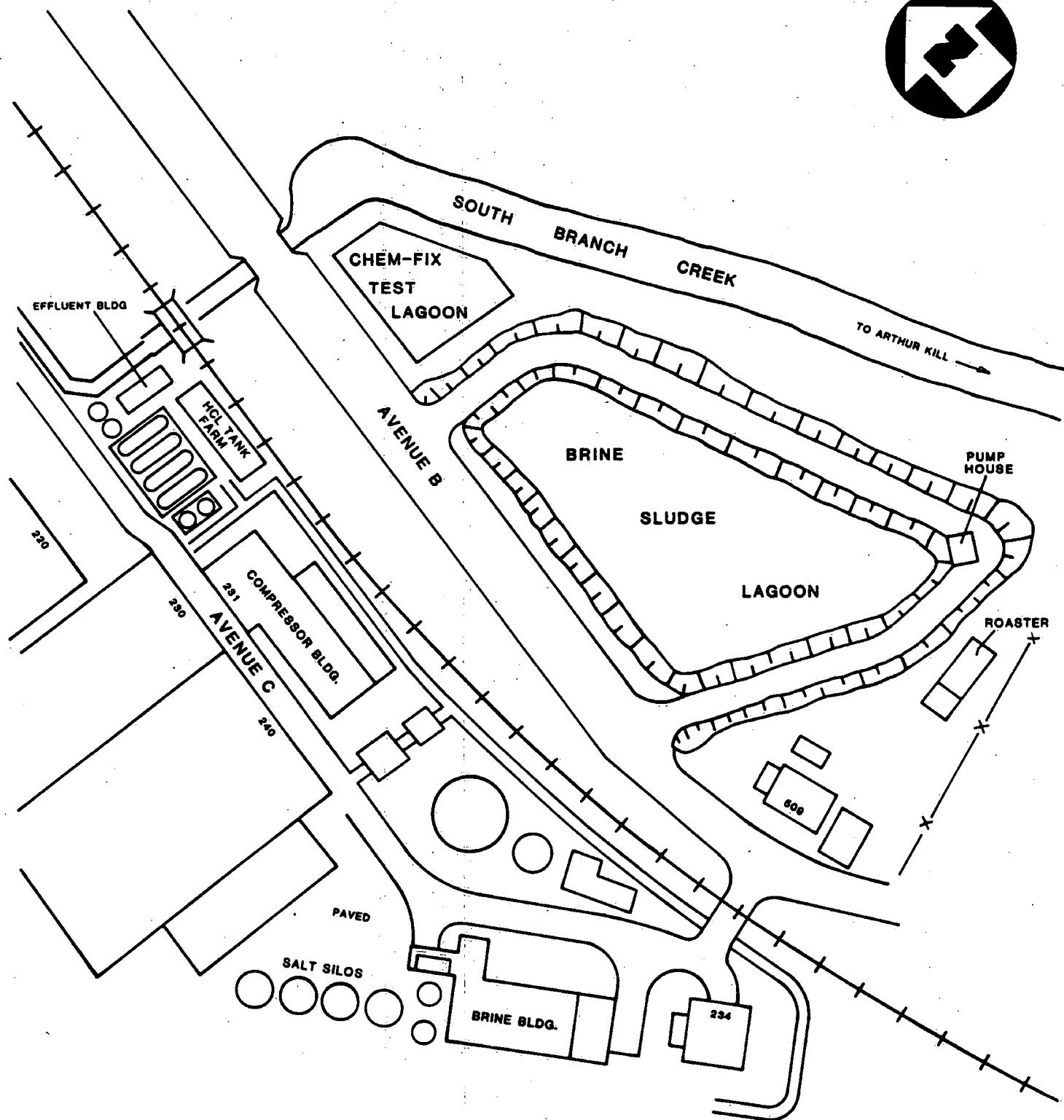
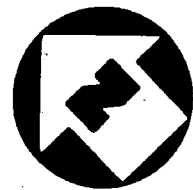
(QUAD) ARTHUR KILL. N.Y.-N.J.

**SITE LOCATION MAP**  
**LCP CHEMICALS SITE, LINDEN, N.J.**

SCALE: 1" = 2000'

**FIGURE A-1**





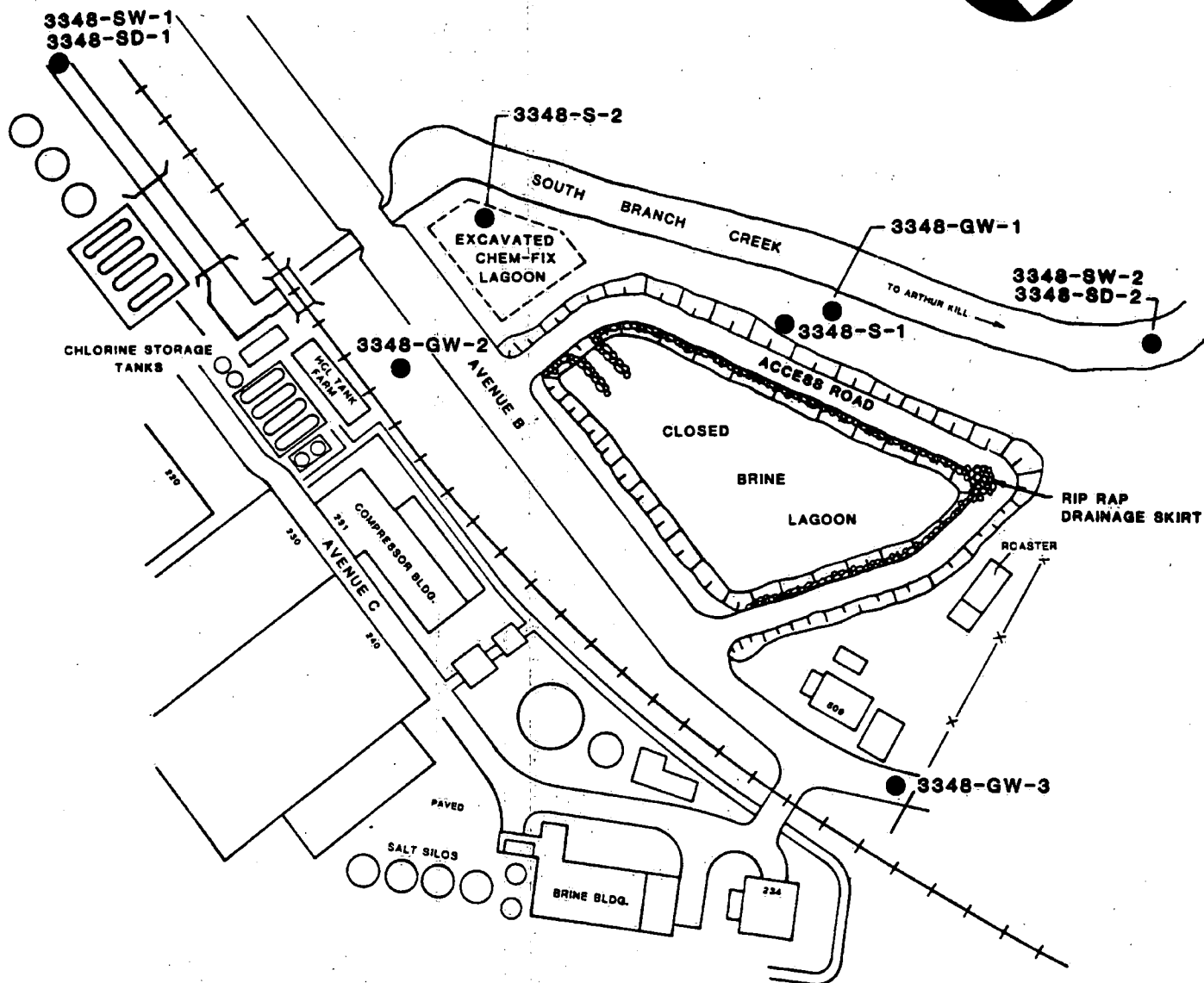
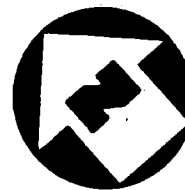
**SITE MAP**  
**LCP CHEMICALS SITE, LINDEN, N.J.**

SCALE: 1" = APPROX. 100'

**FIGURE A-2**



**A Halliburton Company**



**SAMPLE LOCATION MAP**  
**LCP CHEMICALS SITE, LINDEN, N.J.**  
(NOT TO SCALE)

PHOTOGRAPH INDEX

LCP CHEMICALS  
LINDEN, NEW JERSEY

SEPTEMBER 27, 1984

<u>Photo Number</u>	<u>Description</u>	<u>Time</u>
1.	September 27, 1984 Dennis Farley (NUS) and Mike Nicholas (NUS) collect sample 3348-GW-3, a groundwater sample, from monitoring well #5. Figure 3 provides a sample location map.	1255 hrs.
2.	September 27, 1984 Dennis Farley (NUS) and Mike Nicholas (NUS) collect sample 3348-GW-1, a groundwater sample, from monitoring well #2. Figure 3 provides a sample location map.	1337 hrs.
3.	September 27, 1984 Mike Nicholas (NUS) collects sample 3348-SW-1, an upstream surface water sample, from S. Branch Creek. Greg Burchette (NUS) carries the clean sampling equipment. Figure 3 provides a sample location map.	1423 hrs.
4.	September 27, 1984 Mike Nicholas (NUS) collects sample 3348-SD-1, an upstream sediment sample from S. Branch Creek. Greg Burchette (NUS) carries the clean sampling equipment. Figure 3 provides a sample location map.	1427 hrs.
5.	September 27, 1984 Dennis Farley (NUS) and Mike Nicholas (NUS), collect sample 3348-GW-2, a groundwater sample, from monitoring well #4. Figure 3 provides a sample location map.	1437 hrs.
6.	September 27, 1984 Dennis Farley (NUS) collects sample 3348-SW-2 a downstream surface water sample, from S. Branch Creek. Figure 3 provides a sample location map.	1517 hrs.

Photo Number

Description

Time

7.

September 27, 1984  
Dennis Farley (NUS) collects  
sample 3348-SD-2, a downstream  
sediment sample, from S. Branch  
Creek. Figure 3 provides a  
sample location map.

1513 hrs.

8.

September 27, 1984  
Dennis Farley (NUS) collects  
sample 3348-S-1, a soil  
sample between S. Branch Creek  
and the Closed Brine Sludge Lagoon.  
Figure 3 provides a sample location  
map.

1540 hrs.

9.

September 27, 1984  
Dennis Farley (NUS) collects  
sample 3348-S-2, a soil  
sample, from the area of the  
excavated "Chem-Fix Lagoon."  
Figure 3 provides a sample location  
map.

1547 hrs.



1. September 27, 1984 1255 hrs.  
Dennis Farley (NUS) and Mike Nicholas (NUS) collect sample 3348-GW-3, a groundwater sample, from monitoring well #5. Figure 3 provides a sample location map.



2. September 27, 1984 1337 hrs.  
Dennis Farley (NUS) and Mike Nicholas (NUS) collect sample 3348-GW-1, a groundwater sample, from monitoring well #2. Figure 3 provides a sample location map.



3. September 27, 1984 1423 hrs.  
Mike Nicholas (NUS) collects sample 3348-SW-1, an upstream surface water sample, from S. Branch Creek. Greg Burchette (NUS) carries the clean sampling equipment. Figure 3 provides a sample location map.



4. September 27, 1984 1427 hrs.  
Mike Nicholas (NUS) collects sample 3348-SD-1, an upstream sediment sample from S. Branch Creek. Greg Burchette (NUS) carries the clean sampling equipment. Figure 3 provides a sample location map.



5. September 27, 1984 1437 hrs.  
Dennis Farley (NUS) and Mike Nicholas (NUS), collect sample 3348-GW-2, a groundwater sample, from monitoring well #4. Figure 3 provides a sample location map.



6. September 27, 1984 1517 hrs.  
Dennis Farley (NUS) collects sample 3348-SW-2 a downstream surface water sample, from S. Branch Creek. Figure 3 provides a sample location map.



7. September 27, 1984 1531 hrs.  
Dennis Farley (NUS) collects sample 3348-SD-2, a downstream sediment sample, from S. Branch Creek. Figure 3 provides a sample location map.



8. September 27, 1984 1540 hrs.  
Dennis Farley (NUS) collects sample 3348-S-1, a soil sample between S. Branch Creek and the Closed Brine Sludge Lagoon. Figure 3 provides a sample location map..



9.      September 27, 1984      1547 hrs.  
Dennis Farley (NUS) collects sample 3348-S-2, a soil sample,  
from the area of the excavated "Chem-Fix Lagoon." Figure 3  
provides a sample location map.

**FIT QUALITY ASSURANCE TEAM**  
**DOCUMENTATION RECORDS**  
**FOR**  
**HAZARD RANKING SYSTEM**

**INSTRUCTIONS:** As briefly as possible summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference. Include the location of the document.

**FACILITY NAME:** LCP Chemicals

**LOCATION:** Foot of S. Wood Avenue, Linden, New Jersey

**DATE SCORED:** 12/12/84

**PERSON SCORING:** J.S. Cattafe

**PRIMARY SOURCE(S) OF INFORMATION (e.g., EPA region, state, FIT, etc.):**  
NUS Region II FIT files - Site Inspection, Preliminary Assessment  
NJDEP files

**FACTORS NOT SCORED DUE TO INSUFFICIENT INFORMATION:**

**COMMENTS OR QUALIFICATIONS:**

Direct contact was scored using a documented release of mercury to surface water and sediment in S. Branch Creek which borders the landfill. The analytical results of samples collected during the Site Inspection document a release of mercury to both the groundwater and surface water. Elevated concentrations of lead, arsenic and chromium were also detected, however there appears to be no evidence relating these contaminants to LCP Chemicals at the present time. Air route scored zero because samples taken won't confirm air contamination. This route should be scored zero based on SI readings.

## GROUNDWATER ROUTE

### 1 OBSERVED RELEASE

#### **Contaminants detected (5 maximum):**

Mercury, Lead, Arsenic, Chromium

Ref: #10

#### **Rationale for attributing the contaminants to the facility:**

LCP Chemicals formerly used mercury as part of their chlorine production process. There appears to be no proof to connect lead, arsenic and chromium to LCP at the present time. Although Well #5 was designed as an upgradient well, the extent of the tidal influence on groundwater flow is unknown. This arises some questions as to the positioning of well #5 as an upgradient well.

Ref: #4

\* \* \*

### 2 ROUTE CHARACTERISTICS

#### **Depth to Aquifer of Concern**

##### **Name/description of aquifer(s) of concern:**

Brunswick formation - a sequence of alluvial sandstones and shales in which groundwater is transmitted through joints and bedding-plane fractures. The fractures are generally enlarged in one direction causing groundwater to move preferentially along this set of fractures. There appears to be no overall trend in the direction of the enlarged fractures.

Ref: #1, #3

##### **Depth(s) from the ground surface to the highest seasonal level of the saturated zone water table(s) of the aquifer of concern:**

Approximately 40-50 feet.

Ref: #3

##### **Depth from the ground surface to the lowest point of waste disposal/storage:**

The waste is contained in a landfill constructed above grade and is actually a few feet above the natural ground surface.

Ref: #4

**Net Precipitation**

**Mean annual or seasonal precipitation (list months for seasonal):**

45 inches

Ref: #7

**Mean annual lake or seasonal evaporation (list months for seasonal):**

33 inches

Ref: #7

**Net precipitation (subtract the above figures):**

12 inches

**Permeability of Unsaturated Zone**

**Soil type in unsaturated zone:**

Alluvium - silts, clays and some fine-grained sand

Ref: #4

**Permeability associated with soil type:**

$10^{-5}$ - $10^{-7}$  cm/sec

This range is based on general flood plain sediment permeabilities.

Ref: #6

**Physical State**

**Physical state of substances at time of disposal (or at present time for generated gases):**

Solid. - The waste is composed of dewatered and compacted brine sludge and mercury contaminated carbon.

Ref: #4

\* \* \*

### **3 CONTAINMENT**

#### **Containment**

##### **Method(s) of waste or leachate containment evaluated:**

Waste is contained in a closed (capped) brine sludge lagoon. The lagoon is unlined allowing a release of contaminants to the local groundwater.

Ref: #4

##### **Method with highest score:**

Surface impoundment with no liner.

Ref: #5

### **4 WASTE CHARACTERISTICS**

#### **Toxicity and Persistence**

##### **Compound(s) evaluated:**

Mercury (elemental, inorganic)

Ref: #4

##### **Compound with highest score:**

Mercury (elemental, inorganic)

Ref: #5

#### **Hazardous Waste Quantity**

**Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):**

30,900 cubic yards

Ref: #4

##### **Basis of estimating and/or computing waste quantity:**

LCP estimated the quantity of waste in the Brine Sludge lagoon as of February, 1983, just prior to closure.

Ref: #4

\* \* \*

## **5 TARGETS**

### **Groundwater Use**

**Use(s) of aquifer(s) of concern within a 3-mile radius of the facility:**

Groundwater is used for industrial purposes in the city of Linden, New Jersey.

Ref: #3

### **Distance to Nearest Well**

**Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply:**

Along S. Wood Ave., just south of school #6.

Ref: #3

**Distance to above well or building:**

Approximately 2.75 miles.

Ref: #3

### **Population Served by Groundwater Wells Within a 3-Mile Radius**

**Identified water-supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each:**

N/A. Linden, New Jersey's water is supplied by the Elizabethtown Water Company. The source is two reservoirs which are located in Clinton, N.J. approximately 30 miles to the west. The well mentioned above serves the town of Rahway, New Jersey.

Ref: #4

**Computation of land area irrigated by supply well(s) drawing from aquifer(s) of concern within a 3-mile radius, and conversion to population (1.5 people per acre).**

N/A. Locally, the land is not used for agricultural purposes. Industry surrounds the site within a radius of 1.5 miles and changes to a densely populated urban environment beyond that point.

Ref: #8

**Total population served by groundwater within a 3-mile radius:**

N/A. For reasons stated above.

Ref: #4

## **SURFACE WATER ROUTE**

### **1 OBSERVED RELEASE**

**Contaminants detected in surface water at the facility or downhill from it (5 maximum):**

Mercury, Lead, Cadmium

**Rationale for attributing the contaminants to the facility:**

LCP Chemicals formerly used mercury in their chlorine production process. Concentrations of mercury, lead and cadmium are all elevated in the downstream sample as compared to the upstream sample in S. Branch Creek.

\* \* \*

### **2 ROUTE CHARACTERISTICS**

#### **Facility Slope and Intervening Terrain**

**Average slope of facility in percent:**

25% The facility rises to a point approximately twelve feet above grade. The slope is equal in all directions.

Ref: #4

**Name/description of nearest downslope surface water:**

South Branch Creek, a tributary to the Arthur Kill River lies approximately 30' to 50' east of the site. The creeks confluence with the Arthurkill is approximately 1000' down stream.

Ref: #3, #8

**Average slope of terrain between facility and above-cited surface water body in percent:**

15%

Ref: #4

**Is the facility located either totally or partially in surface water?**

No, the base of the facility lies approximately five to seven feet above the high tide level of S. Branch Creek.

Ref: #4

**Is the facility completely surrounded by areas of higher elevation?**

No, the facility is surrounded by areas of lower elevation.

Ref: #4

**1-Year 24-hour Rainfall in Inches**

2.5 inches

Ref: #7

**Distance to Nearest Downslope Surface Water**

30'-50'

Ref: #4

**Physical State of Waste**

Solid - the waste consists of dewatered sludge and solids.

Ref: #4

\* \* \*

**3 CONTAINMENT**

**Containment**

**Method(s) of waste or leachate containment evaluated:**

Waste is contained in a closed (capped) brine sludge lagoon. The lagoon is unlined.

Ref: #4

**Method with highest score:**

Surface impoundment with no liner.

Ref: #6

#### **4 WASTE CHARACTERISTICS**

##### **Toxicity and Persistence**

###### **Compound(s) evaluated**

Mercury (elemental, inorganic)

Ref: #4

###### **Compound with highest score:**

Mercury (elemental, inorganic)

Ref: #5

##### **Hazardous Waste Quantity**

**Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):**

30,900 cubic yards

Ref: #4

###### **Basis of estimating and/or computing waste quantity:**

LCP made estimates based on volume of waste in the brine sludge lagoon as of February, 1983, just prior to closure.

Ref: #4

\* \* \*

#### **5 TARGETS**

##### **Surface Water Use**

**Use(s) of surface water within 3 miles downstream of the hazardous substance:**

Recreation - Boating was observed along stretches of the Arthur Kill River

Ref: #4

**Is there tidal influence?**

Yes, the tidal range in S. Branch Creek was approximately two feet. Effects of this tidal influence were observed in down-gradient monitoring well #2.

Ref: #4

**Distance to a Sensitive Environment**

**Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:**

The site is situated within a coastal wetland.

Ref: #4, #8

**Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:**

N/A

Ref: #4, #8

**Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less:**

The wetlands surrounding the site are breeding grounds for water fowl which could be consumed by the peregrine falcon. *Falco peregrinus* disappeared along the east coast in the early 1960's as a result of DDT contamination. They are now being reintroduced to the area.

Ref: #4

**Population Served by Surface Water**

**Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:**

N/A - The Arthur Kill River is not used as a source of potable water or irrigation.

Ref: #4

**Computation of land area irrigated by above-cited intake(s) and conversion to population (1.5 people per acre):**

N/A

Ref: #4, #8

**Total population served:**

N/A

Ref: #4

**Name/description of nearest of above water bodies:**

N/A

Ref: #4, #8

**Distance to above-cited intakes, measured in stream miles.**

N/A

Ref: #4

## **AIR ROUTE**

### **1 OBSERVED RELEASE**

**Contaminants detected:**

**Date and location of detection of contaminants**

**Methods used to detect the contaminants:**

**Rationale for attributing the contaminants to the site:**

A mercury detector and an HCL Draeger Assembly were employed to screen the air at the site. The instruments did not detect the presence of contaminants in the ambient air.

\* \* \*

### **2 WASTE CHARACTERISTICS**

#### **Reactivity and Incompatibility**

**Most reactive compound:**

Mercury (elemental, inorganic)

Ref: #5

**Most incompatible pair of compounds:**

(HgO, HgS, Hg, Hg<sub>3</sub> P<sub>2</sub>) and Cl<sub>2</sub>, LCP produces Cl<sub>2</sub> gas at their Linden facility.

Ref: #5

### Toxicity

#### **Most toxic compound:**

Mercury (elemental, inorganic)

Ref: #5

### Hazardous Waste Quantity

#### **Total quantity of hazardous waste:**

30,900 cubic yards

Ref: #4

#### **Basis of estimating and/or computing waste quantity:**

LCP made estimates of waste volume in the Brine sludge lagoon in February, 1983 just prior to closure.

Ref: #4

\* \* \*

## **3 TARGETS**

### Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

<u>0 to 4 mi</u>	<u>0 to 1 mi</u>	<u>0 to 1/2 mi</u>	<u>0 to 1/4 mi</u>
201,010	7	0	0

Ref: #2

### Distance to a Sensitive Environment

**Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:**

The site is situated within a coastal wetland.

Ref: #4, #8

**Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:**

N/A

Ref: #4, #8

**Distance to critical habitat of an endangered species, if 1 mile or less:**

The wetlands which surround the site are breeding of grounds for water fowl which could be consumed by the peregrine falcon. Falco peregrinus disappeared along the east coast in the early 1960's as a result of DDT contamination. They are now being reintroduced to the area.

Ref: #4

**Land Use**

**Distance to commercial/industrial area, if 1 mile or less:**

The site is surrounded by an industrial area.

Ref: #8

**Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:**

N/A

Ref: #8

**Distance to residential area, if 2 miles or less:**

A residential section of Linden, New Jersey is situated 1.5 miles to the west.

Ref: #8

**Distance to agricultural land in production within past 5 years, if 1 mile or less:**

N/A

Ref: #8

**Distance to prime agricultural land in production within past 5 years, if 2 miles or less:**

N/A

Ref: #8

**Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?**

N/A

Ref: #4, #8

## **FIRE AND EXPLOSION**

### **1 CONTAINMENT**

#### **Hazardous substances present:**

Mercury (elemental, inorganic)

Ref: #4

#### **Type of containment, if applicable:**

The facility is a former brine sludge lagoon which has been dewatered, compacted, capped with two feet of clay and covered with six inches of soil stabilized with vegetation.

Ref: #4

\* \* \*

### **2 WASTE CHARACTERISTICS**

#### **Direct Evidence**

#### **Type of instrument and measurements:**

#### **Ignitability**

#### **Compound used:**

Mercury (elemental, inorganic)

Ref: #4

#### **Reactivity**

#### **Most reactive compound:**

Mercury - reacts violently with chlorine gas. LCP produces Cl<sub>2</sub> gas at the Linden facility.

Ref: #5

#### **Incompatibility**

#### **Most incompatible pair of compounds:**

Mercury (HgO, HgS Hg, Hg<sub>3</sub> P<sub>2</sub>) and Cl<sub>2</sub>, LCP produces Cl<sub>2</sub> gas at the Linden facility.

Ref: #5

\* \* \*

## **Hazardous Waste Quantity**

### **Total quantity of hazardous substances at the facility:**

30,900 cubic yards

Ref: #4

### **Basis of estimating and/or computing waste quantity:**

LCP estimated the volume of waste in the Brine-Sludge lagoon as of February, 1983, just prior to closure.

Ref: #4

\* \* \*

## **3 TARGETS**

### **Distance to Nearest Population**

LCP's Linden Plant is located 100-150 feet from the closed brine sludge lagoon.

The closest residential population is approximately 1.5 miles away.

Ref: #4

### **Distance to Nearest Building**

100' to 150'

Ref: #4

### **Distance to Sensitive Environment**

#### **Distance to wetlands:**

The site lies within the flood plain of the Arthur Kill River.

Ref: #4

#### **Distance to critical habitat:**

It is possible that the peregrine falcon may feed on the water fowl population of the adjacent wetlands. *Falco peregrinus* is being reintroduced to the area following its disappearance due to DDT poisoning.

Ref: #4

### **Land Use**

#### **Distance to commercial/industrial area, if 1 mile or less:**

The closed brine sludge lagoon is on LCP property and approximately 100'-150' from the LCP plant.

Ref: #4

**Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:**

N/A

Ref: #8

**Distance to residential area, if 2 miles or less:**

A residential section of Linden, New Jersey is situated 1.5 miles west of the site.

Ref: #8

**Distance to agricultural land in production within past 5 years, if 1 mile or less:**

N/A

Ref: #8

**Distance to prime agricultural land in production within past 5 years, if 2 miles or less:**

N/A

Ref: #8

**Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?**

N/A

Ref: #4, #8

**Population Within 2-Mile Radius**

20,011

Ref: #2

**Buildings Within 2-Mile Radius**

7178

Ref: #2

## DIRECT CONTACT

### 1 OBSERVED INCIDENT

Date, location, and pertinent details of incident:

\* \* \*

### 2 ACCESSIBILITY

Describe type of barrier(s):

A security fence surrounds LCP's facility on three sides. A 24-hour security guard house is situated at entrance to the compound. S. Branch Creek which borders the sites eastern boundary exhibits levels of mercury above the U.S. EPA. Ambient Water Quality Standards. The sediment along the creek also shows elevated concentrations of lead and mercury.

Ref: #4

\* \* \*

### 3 CONTAINMENT

Type of containment, if applicable:

The mercury contaminated waste is contained in a closed brine sludge lagoon. Closure features include a two-foot clay cap, vegetative cover and run off management system. The facility is unlined.

Ref: #4

\* \* \*

### 4 WASTE CHARACTERISTICS

Toxicity

Compounds evaluated:

Mercury (elemental, inorganic)

Ref: #4

Compound with highest score:

Mercury (elemental, inorganic)

Ref: #5

## 5 TARGETS

### Population Within One-Mile Radius

0

Ref: #2

### Distance to Critical Habitat (of Endangered Species)

The peregrine falcon, which is begin reintroduced to the area, may feed on locally contaminated water fowl.

Ref: #4

**Facility name:** LCP Chemicals

**Location:** Foot of S. Wood Avenue

**EPA Region:** II

**Persons(s) in charge of the facility:** Contact during site inspection: Mark McLaughlin  
Technical Supervisor  
Replacement as of December 1984 - Terry Duran

**Name of Reviewer:** J.S. Cattafe

**Date:** 12/17/84

**General description of the facility:**

(For example: landfill surface impoundment pile, container; types of hazardous substances; location of the facility; contamination route of major concern; type of information needed for rating; agency action, etc.)

LCP Chemicals is located in the Tremly Point section of Linden, New Jersey, a heavily industrialized area along the low lying wetlands of the Arthurkill River. The subject of the Site Inspection is a closed brine sludge lagoon, which accepted mercury contaminated waste. The facility lies within the LCP compound and adjacent to S. Branch Creek, a tributary of the Arthurkill River. The waste is situated five to seven feet above the high tide level of S. Branch Creek.

**Score:**  $S_M$  13.1 ( $S_{gw}$  6.12  $S_{sw}$  21.82  $S_a = 0$ )

$S_{FE} = 18.89$

$S_{DC} = 20.83$

**HRS COVER SHEET**

Ground Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi- plier	Score	Max. Score	Ref. (Section)	
<b>1</b> Observed Release	0 <b>45</b>	1	45	45	3.1	
If observed release is given a score of 45, proceed to line <b>4</b> . If observed release is given a score of 0, proceed to line <b>2</b> .						
<b>2</b> Route Characteristics					3.2	
Depth to Aquifer of Concern	0 1 2 3	2		8		
Net Precipitation	0 1 2 3	1		3		
Permeability of the Unsaturated Zone	0 1 2 3	1		3		
Physical State	0 1 2 3	1		3		
Total Route Characteristics Score				15		
<b>3</b> Containment	0 1 2 3	1		3	3.3	
<b>4</b> Waste Characteristics					3.4	
Toxicity/Persistence	0 3 6 9 12 15 <b>18</b>	1	18	18		
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 <b>8</b>	1	8	8		
Total Waste Characteristics Score				26	28	
<b>5</b> Targets					3.5	
Ground Water Use	0 <b>1</b> 2 3	3	3	9		
Distance to Nearest Well/Population Served	<b>0</b> 4 6 8 10 12 16 18 20 24 30 32 35 40	1	0	40		
Total Targets Score				3	49	
<b>6</b> If line <b>1</b> is 45, multiply <b>1</b> x <b>4</b> x <b>5</b> If line <b>1</b> is 0, multiply <b>2</b> x <b>3</b> x <b>4</b> x <b>5</b>				3510	57,330	
<b>7</b> Divide line <b>6</b> by 57,330 and multiply by 100				S <sub>gw</sub> = 6.12		

**FIGURE 2**  
**GROUND WATER ROUTE WORK SHEET**

Surface Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)	
<b>1</b> Observed Release	0 <u>45</u>	1	45	45	4.1	
If observed release is given a value of 45, proceed to line <b>4</b> . If observed release is given a value of 0, proceed to line <b>2</b> .						
<b>2</b> Route Characteristics					4.2	
Facility Slope and Intervening Terrain	0 1 2 3	1		3		
1-yr. 24-hr. Rainfall	0 1 2 3	1		3		
Distance to Nearest Surface Water	0 1 2 3	2		6		
Physical State	0 1 2 3	1		3		
Total Route Characteristics Score				15		
<b>3</b> Containment	0 1 2 3	1		3	4.3	
<b>4</b> Waste Characteristics					4.4	
Toxicity/Persistence	0 3 6 9 12 15 <u>18</u>	1	18	18		
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 <u>8</u>	1	8	8		
Total Waste Characteristics Score				26	26	
<b>5</b> Targets					4.5	
Surface Water Use	0 1 <u>2</u> 3	3	6	9		
Distance to a Sensitive Environment	0 1 2 <u>3</u>	2	6	6		
Population Served/Distance to Water Intake Downstream	<u>0</u> 4 6 8 10 12 16 18 20 24 30 32 35 40	1	0	40		
Total Targets Score				12	55	
<b>6</b> If line <b>1</b> is 45, multiply <b>1</b> x <b>4</b> x <b>5</b> If line <b>1</b> is 0, multiply <b>2</b> x <b>3</b> x <b>4</b> x <b>5</b>			14040	64,350		
<b>7</b> Divide line <b>6</b> by 64,350 and multiply by 100			S <sub>sw</sub> = 21.82			

**FIGURE 7**  
**SURFACE WATER ROUTE WORK SHEET**

Air Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
<b>1</b> Observed Release	0      45	1	0	45	5.1
Date and Location:					
Sampling Protocol:					
If line <b>1</b> is 0, the $S_a = 0$ . Enter on line <b>5</b> .					
If line <b>1</b> is 45, then proceed to line <b>2</b> .					
<b>2</b> Waste Characteristics	0 1 2 <b>3</b>	1	3	3	5.2
Reactivity and Incompatibility	0 1 2 <b>3</b>	3	9	9	
Toxicity	0 1 2 3 4 5 6 7 <b>8</b>	1	8	8	
Hazardous Waste Quantity					
Total Waste Characteristics Score				20	
<b>3</b> Targets	0 9 12 15 18	1	21	30	5.3
Population Within 4-Mile Radius	<b>21</b> 24 27 30	2	6	6	
Distance to Sensitive Environment	0 1 2 <b>3</b>	1	3	3	
Land Use	0 1 2 <b>3</b>				
Total Targets Score				30	39
<b>4</b> Multiply <b>1</b> x <b>2</b> x <b>3</b>				0	35.100
<b>5</b> Divide line <b>4</b> by 35.100 and multiply by 100				$S_a = 0$	

**FIGURE 9**  
**AIR ROUTE WORK SHEET**

	s	s <sup>2</sup>
Groundwater Route Score (S <sub>gw</sub> )	6.12	37.45
Surface Water Route Score (S <sub>sw</sub> )	21.22	476.11
Air Route Score (S <sub>a</sub> )	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		513.56
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		22.66
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		13.1

**FIGURE 10**  
**WORKSHEET FOR COMPUTING S<sub>M</sub>**

Fire and Explosion Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi- plier	Score	Max. Score	Ref. (Section)	
<b>1</b> Containment	1                      3	1	1	3	7.1	
<b>2</b> Waste Characteristics					7.2	
Direct Evidence	0 1 2 3	1	0	3		
Ignitability	0 1 2 3	1	0	3		
Reactivity	0 1 2 3	1	3	3		
Incompatibility	0 1 2 3	1	3	3		
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1	8	8		
Total Waste Characteristics Score			17	20		
<b>3</b> Targets					7.3	
Distance to Nearest Population	0 1 2 3 4 5	1	4	5		
Distance to Nearest Building	0 1 2 3	1	2	3		
Distance to Sensitive Environment	0 1 2 3	1	3	3		
Land Use	0 1 2 3	1	2	3		
Population Within 2-Mile Radius	0 1 2 3 4 5	1	4	5		
Buildings Within 2-Mile Radius	0 1 2 3 4 5	1	1	5		
Total Targets Score			16	24		
<b>4</b> Multiply <b>1</b> x <b>2</b> x <b>3</b>			272	1,440		
<b>5</b> Divide line <b>4</b> by 1,440 and multiply by 100			SFE = 18.89			

**FIGURE 11  
FIRE AND EXPLOSION WORK SHEET**

Direct Contact Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi- plier	Score	Max. Score	Ref. (Section)	
<b>1</b> Observed Incident	0 45	1	0	45	8.1	
If line <b>1</b> is 45, proceed to line <b>4</b> If line <b>1</b> is 0, proceed to line <b>2</b>						
<b>2</b> Accessibility	0 1 2 3	1	1	3	8.2	
<b>3</b> Containment	0 15	1	15	15	8.3	
<b>4</b> Waste Characteristics Toxicity	0 1 2 3	5	3	15	8.4	
<b>5</b> Targets					8.5	
Population Within a 1-Mile Radius	0 1 2 3 4 5	4	8	20		
Distance to a Critical Habitat	0 1 2 3	4	12	12		
Total Targets Score			20	32		
<b>6</b> If line <b>1</b> is 45, multiply <b>1</b> x <b>4</b> x <b>5</b> If line <b>1</b> is 0, multiply <b>2</b> x <b>3</b> x <b>4</b> x <b>5</b>			450	21,600		
<b>7</b> Divide line <b>6</b> by 21,600 and multiply by 100			SDC = 20.83			

**FIGURE 12**  
**DIRECT CONTACT WORK SHEET**

## BIBLIOGRAPHY OF INFORMATION SOURCES

### HRS MODEL

SOURCE	LOCATION
1. Anderson, H.R., Geology and Groundwater Resources of the Rahway Area, New Jersey. USGS Special Report No. 27, Washington D. C.: Government Printing Office, 1968.	NUS Corp., Edison, NJ
2. Graphical Exposure Modeling System. General Software Corporation, 1984.	NUS Corp., Edison, NJ
3. Nemikas, B., Geology and Groundwater Resources of Union County, New Jersey. USGS Water-Resources Investigations 76-73, 1976.	NUS Corp., Edison, NJ
4. NUS Region II FIT Files.	NUS Corp., Edison, NJ
5. Sax, N.I. Dangerous Properties of Industrial Materials. New York, N.Y.: Van Nostrand Reinhold Company, 1979.	NUS Corp., Edison, NJ
6. The MITRE Corporation, users manual.	NUS Corp., Edison, NJ
7. U.S. Environmental Protection Agency, "National Oil and Hazardous Substances Contingency Plan". Federal Register Vol. 47, No. 137, Washington D.C.: Government Printing Office, 1982.	NUS Corp., Edison, NJ
8. United States Geological Survey. Arthurkill Quadrangle, New Jersey 7.5 Minute Series (Topographic). Reston, Va.: USGS, 1966.	NUS Corp., Edison, NJ
9. Organic Sample Analyses from Environmental Monitoring and Services, Inc.	NUS Corp., Edison, NJ
10. Inorganic Sample Analyses from JTC Environmental Consultants, Inc.	NUS Corp., Edison, NJ

NUS Corp. FIT Region II

## Summary Statement

### LCP Chemicals

#### Linden, New Jersey

LCP Chemicals, a division of LCP Chemicals and Plastics, Inc., operates a chlorine gas production facility at the foot of S. Wood Avenue in Linden, New Jersey. Chlorine gas is produced by the electrolysis of a sodium chloride brine. The process involved the use of a mercury cell for a period of several years during the 1970's. Sodium hydroxide (caustic soda) sludge, a biproduct of this process, was subsequently contaminated with mercury. The sludge was stored in a lagoon which was located between the production plant and S. Branch Creek to the east. LCP attempted to recover some of the mercury in an experimental chem-fix lagoon which was constructed at the edge of the main lagoon. The project was abandoned, and LCP changed their production procedures to eliminate the hazardous mercury component from the process.

In 1982 the US EPA ordered the LCP plant closed until the lagoon was secured and the hazard to plant workers was eliminated. LCP proposed to excavate the experimental lagoon and place the excavated material along with all mercury contaminated waste into the brine-sludge lagoon. The lagoon would subsequently be capped with an impermeable layer of clay. The proposal was accepted and closure procedures were completed during the fall of 1984.

The landfill covers an area of 62,500 square feet and rises to a point approximately 15 feet above S. Branch Creek, a tributary to the Arthur Kill River. LCP has installed five groundwater monitoring wells around the landfill. LCP samples these wells semi-annually and analyzes the samples for a list of 14 substances.



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION  
DIVISION OF WATER RESOURCES

CN 029

TRENTON, NEW JERSEY 08625

JOHN W. GASTON JR., P.E.  
DIRECTOR

DIRK C. HODMAN, P.E.  
DEPUTY DIRECTOR

CERTIFIED MAIL  
RETURNED RECEIPT REQUESTED

LCP Chemicals & Plastics, Inc. - N.J.  
Raritan Plaza II, Raritan Center  
Edison, N.J. 08837

DEC 27 1983

Re: NJPDES Permit No. NJ0003778  
Effective Date: 2-1-84

Dear Sir:

Enclosed is the final NJPDES/Ground Water Discharge Permit and Notice of Authorization to discharge pollutants to the ground water, issued in accordance with the New Jersey Pollutant Discharge Elimination System Regulations, N.J.A.C. 7:14A-1 et seq. Violation of any condition of this permit may subject you to significant penalties.

Within 30 calendar days following your receipt of this permit, under N.J.A.C. 7:14A-8.6 you may submit a request to the Administrator for an adjudicatory hearing to reconsider or contest the conditions of this permit. Regulations regarding the format and requirements for requesting an adjudicatory hearing may be found in N.J.A.C. 7:14A-8.9 through 8.13. The request should be made to:

Administrator  
Water Quality Management Element  
Division of Water Resources  
CN-029  
Trenton, New Jersey 08625

Application for renewal of this permit must be submitted at least 180 days prior to expiration of this permit pursuant to N.J.A.C. 7:14A-2.1(f)5.

If you have any questions on this action, please contact Robert Berg, Supervisor, Land Application of Wastewater at (609) 292-0424.

Very truly yours,

John J. Trela, Chief  
Ground Water Discharge Permits Bureau  
Water Quality Management

Table 3 - Ground Water Monitoring Requirements and Limitations for Initial Interim NJPDES Permits for Industrial Waste Management Facilities and Hazardous Waste Interim Status Facilities

The permittee shall install and sample a total of 5 ground water monitoring wells according to the schedule below. All ground water elevations must be determined prior to pumping and sampling the ground water monitoring wells. Sampling of the ground water monitoring wells be performed according to the methodology specified in Section 6.12 of the NJPDES regulation and the Department's Field Procedures Manual for Water Data Acquisition. The permittee shall sample for all parameters for which there is an "X" to the left of the parameter name. Sampling shall be performed during the months which are specified for that parameter.

PARAMETER	LIMITATION	SAMPLING MONTH	SAMPLE TYPE	REPORTING MONTH
___ Aldrin/Dieldrin	0.003 ppb	JanAprJulOct	Grab	FebMayAugNov
___ Ammonia-Nitrogen	0.5 ppm	JanAprJulOct	Grab	FebMayAugNov
X Arsenic and Compounds	0.05 ppm	JanAprJulOct	Grab	FebMayAugNov
X Barium	1.0 ppm	JanAprJulOct	Grab	FebMayAugNov
___ Benzidine	0.1 ppb	JanAprJulOct	Grab	FebMayAugNov
___ Biochemical Oxygen Demand (BOD <sub>5</sub> )			Grab	FebMayAugNov
X Cadmium	0.01 ppm	JanAprJulOct	Grab	FebMayAugNov
___ Calcium		JanAprJulOct	Grab	FebMayAugNov
___ Chemical Oxygen Demand (COD)	ppm	JanAprJulOct	Grab	FebMayAugNov
X Chloride	ppm	JanAprJulOct	Grab	FebMayAugNov
X Chromium (Hexavalent) and Compounds	ppm	JanAprJulOct	Grab	FebMayAugNov
___ Coliform Bacteria	0.05 ppm	JanAprJulOct	Grab	FebMayAugNov
___ Color	(1)	JanAprJulOct	Grab	FebMayAugNov
___ Copper	None Noticeable	JanAprJulOct	Grab	FebMayAugNov
___ Cyanide	1.0 ppm	JanAprJulOct	Grab	FebMayAugNov
___ DDT and Metabolites	0.2 ppm	JanAprJulOct	Grab	FebMayAugNov
___ Endrin	0.001 ppb	JanAprJulOct	Grab	FebMayAugNov
___ Fecal Coliform, MPN per 100 ml	0.004 ppb	JanAprJulOct	Grab	FebMayAugNov
___ Fluoride	( )	JanAprJulOct	Grab	FebMayAugNov
___ Foaming Agents	2.0 ppm	JanAprJulOct	Grab	FebMayAugNov
___ Gross Alpha	0.5 ppm	JanAprJulOct	Grab	FebMayAugNov
___ Gross Beta		JanAprJulOct	Grab	FebMayAugNov
___ Hardness		JanAprJulOct	Grab	FebMayAugNov
X Iron	ppm	JanAprJulOct	Grab	FebMayAugNov
	0.3 ppm	JanAprJulOct	Grab	FebMayAugNov

# GROUND WATER MONITORING REQUIREMENTS AND LIMITATIONS - Page 2

PARAMETER	LIMITATION	SAMPLING MONTH	SAMPLE TYPE	REPORTING MONTH
<input checked="" type="checkbox"/> Kjeldahl Nitrogen		JanAprJulOct	Grab	FebMayAugNov
<input checked="" type="checkbox"/> Lead and Compounds	0.05 ppm	JanAprJulOct	Grab	FebMayAugNov
<input type="checkbox"/> Lindane	ppb	JanAprJulOct	Grab	FebMayAugNov
<input type="checkbox"/> Magnesium	ppm	JanAprJulOct	Grab	FebMayAugNov
<input checked="" type="checkbox"/> Manganese	0.05 ppm	JanAprJulOct	Grab	FebMayAugNov
<input checked="" type="checkbox"/> Mercury and Compounds	0.002 ppm	JanAprJulOct	Grab	FebMayAugNov
<input type="checkbox"/> Methoxychlor	ppb	JanAprJulOct	Grab	FebMayAugNov
<input type="checkbox"/> Nitrate-Nitrogen (NO <sub>3</sub> -N)	ppm	JanAprJulOct	Grab	FebMayAugNov
<input type="checkbox"/> Odor and Taste	None	JanAprJulOct	Grab	FebMayAugNov
<input type="checkbox"/> Oil and Grease	Noticeable	JanAprJulOct	Grab	FebMayAugNov
<input checked="" type="checkbox"/> pH	10.0 ppm	JanAprJulOct	Grab	FebMayAugNov
<input checked="" type="checkbox"/> Phenols	S.U.	JanAprJulOct	Grab	FebMayAugNov
<input type="checkbox"/> Phosphate, Total	ppb	JanAprJulOct	Grab	FebMayAugNov
<input type="checkbox"/> Polychlorinated Biphenyls (PCBs)	ppm	JanAprJulOct	Grab	FebMayAugNov
<input type="checkbox"/> Radionuclides	0.001 ppb	JanAprJulOct	Grab	FebMayAugNov
<input type="checkbox"/> Radium	(2)	JanAprJulOct	Grab	FebMayAugNov
<input checked="" type="checkbox"/> Selenium and Compounds		JanAprJulOct	Grab	FebMayAugNov
<input checked="" type="checkbox"/> Silver and Compounds	0.05 ppm	JanAprJulOct	Grab	FebMayAugNov
<input checked="" type="checkbox"/> Sodium	ppm	JanAprJulOct	Grab	FebMayAugNov
<input checked="" type="checkbox"/> Specific Conductance (mmho-cm)	ppm	JanAprJulOct	Grab	FebMayAugNov
<input checked="" type="checkbox"/> Sulfate		JanAprJulOct	Grab	FebMayAugNov
<input checked="" type="checkbox"/> Total Dissolved Solids (TDS)	ppm	JanAprJulOct	Grab	FebMayAugNov
<input checked="" type="checkbox"/> Total Organic Carbon (TOC)	ppm	JanAprJulOct	Grab	FebMayAugNov
<input checked="" type="checkbox"/> Total Organic Halogen (TOH or TOX)	ppm	JanAprJulOct	Grab	FebMayAugNov
<input type="checkbox"/> Total Volatile Organics by GC/MS Scan (3)	ppm	JanAprJulOct	Grab	FebMayAugNov
<input type="checkbox"/> Toxaphene	50 ppb	JanAprJulOct	Grab	FebMayAugNov
<input type="checkbox"/> Turbidity	0.005 ppb	JanAprJulOct	Grab	FebMayAugNov
<input type="checkbox"/> Zinc and Compounds	ppm	JanAprJulOct	Grab	FebMayAugNov
<input type="checkbox"/> 2,4 D	5.0 ppm	JanAprJulOct	Grab	FebMayAugNov
<input type="checkbox"/> 2,4,5-TP Silvex	ppb	JanAprJulOct	Grab	FebMayAugNov
	ppb	JanAprJulOct	Grab	FebMayAugNov

# GROUND WATER MONITORING REQUIREMENTS AND LIMITATIONS - Page 3

<u>PARAMETER</u>	<u>LIMITATION</u>	<u>SAMPLING MONTH</u>	<u>REPORTING MONTH</u>
<u>X</u> Elevation of Top of Monitor Well Casing (To be determined once, but reported as indicated)		JanAprJulOct	FebMayAugNov
<u>X</u> Depth of Water Table from Top of Casing Prior to Sampling		JanAprJulOct	FebMayAugNov
<u>X</u> Depth to Water Table from Original Ground Level Prior to Sampling		JanAprJulOct	FebMayAugNov

- Notes: (1) A. By membrane filtration, not to exceed four per 100 ml in more than one sample when less than 20 are examined per month, or B. by fermentation tube, with a standard 10 ml portion, not to be present in three or more portions in more than one sample when less than 20 are examined per month, or C. prevailing criteria adopted pursuant to The Federal Safe Drinking Water Act (PL 93-523).
- (2) Prevailing regulations adopted by USEPA pursuant to Sections 1412, 1415, and 1450 of The Public Health Services Act as amended by The Safe Drinking Water Act (PL 93-523).
- (3) The minimum detection level shall be at least 10 ppb for all volatile organic chemicals. The concentration limit for specific volatile organic chemicals shall be that specified in Appendix F of the NJPDES regulations for the 10<sup>-5</sup> Cancer Risk, but in no case shall the total concentration for all volatile organic chemicals exceed 50 ppb.

The Permittee shall complete the forms required on the "Monitoring Report - Transmittal Sheet" (Form T-VHX-014) which is included as a part of this Permit. Failure to submit sampling data on the forms required on the "Monitoring Report - Transmittal Sheet" shall be considered by the Department to be a violation of the Permit sampling requirements and may place the Permittee subject to civil and administrative penalties pursuant to N.J.S.A. 58:10A-10.

It shall be the Permittee's sole responsibility to maintain an adequate supply of the required report forms.

# **Dangerous Properties of Industrial Materials**

**Fifth Edition**

**N. IRVING SAX**

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**VAN NOSTRAND REINHOLD COMPANY**  
NEW YORK CINCINNATI TORONTO LONDON MELBOURNE

**MERCUROUS HYPOPHOSPHATE.**  $\text{Hg}_3\text{P}_2\text{O}_6$ , mw: 960.3.

THR = HIGH. See mercury compounds. Unstable. Decomps explosively. [19]

**MERCUROUSIODATE.** Yellowish crystals.  $\text{Hg}_2(\text{IO}_3)_2$ , mw: 751.06, mp: decomp.

THR = See mercury compounds, inorganic, and iodates.

**MERCUROUS IODIDE.** Yellow tetragonal crystals or amorphous powder.  $\text{HgI}_2$ , mw: 327.50, mp: sublimes @  $140^\circ$ , bp: decomp @  $290^\circ$ , d: 7.70.

Acute tox data: Oral  $\text{LD}_{50}$  (mouse) = 110 mg/kg; ip  $\text{LD}_{50}$  (mouse) = 50 mg/kg. [3]

THR = HIGH via oral and ip routes. See mercury compounds, inorganic, and iodides.

**MERCUROUS MONOHYDROGEN-o-ARSENATE.** Yellow-red crystals.  $\text{Hg}_2\text{HASO}_4$ , mw: 541.14.

THR = HIGH. See arsenic compounds and mercury compounds, inorganic.

**MERCUROUS NITRATE.** Short, colorless, efflorescent crystals.  $\text{Hg}_2(\text{NO}_3)_2 \cdot 2\text{H}_2\text{O}$ , mw: 561.26, mp:  $70^\circ$ , d: 4.79 @  $4^\circ$ .

Acute tox data: Oral  $\text{LD}_{50}$  (rat) = 297 mg/kg; oral  $\text{LD}_{50}$  (mouse) = 388 mg/kg; ip  $\text{LD}_{50}$  (mouse) = 5 mg/kg. [3]

THR = HIGH via oral and ip routes. See mercury compounds, inorganic, and nitrates. Violent reaction with C, P. [19]

**MERCUROUS NITRATE, AMMONIATED.** Syn: *black precipitate*. Black powder,  $\text{Hg}_2\text{ONH}_2 \cdot \text{Hg}_2(\text{NO}_3)_2$ , mw: 958.4.

THR = See mercury compounds, inorganic, and nitrates.

**MERCUROUS NITRITE.** Yellow crystals.  $\text{Hg}_2(\text{NO}_2)_2$ , mw: 493.24, mp: decomp @  $100^\circ$ , d: 7.33.

THR = HIGH. See mercury compounds, inorganic, and nitrites.

**MERCUROUS OXALATE.** White crystals.  $\text{Hg}_2\text{C}_2\text{O}_4$ , mw: 489.24.

THR = See oxalates and mercury compounds, organic.

**MERCUROUS OXIDE, BLACK.** Black to grayish-black powder.  $\text{Hg}_2\text{O}$ , mw: 417.22, mp: decomp @  $100^\circ$ , d: 9.8.

THR = HIGH. See mercury compounds, inorganic.

Fire Hazard: Mod. by chemical reaction; an oxidizer.

Reacts violently with  $\text{H}_2\text{O}_2$ , K, Na, S,

( $\text{H}_2\text{S} + \text{BaO} + \text{air}$ ). [19]

Disaster Hazard: Dangerous; when heated to decomp, emits highly toxic fumes of mercury; can react with reducing materials.

**MERCUROUS PHOSPHATE.** Heavy white powder.  $\text{Hg}_3\text{PO}_4$ , mw: 696.85.

THR = See mercury compounds, inorganic.

**MERCUROUS SULFATE.** White crystalline powder.  $\text{Hg}_2\text{SO}_4$ , mw: 497.28, mp: decomp, d: 7.56.

THR = See mercury compounds, inorganic, and sulfates.

**MERCUROUS SULFIDE.** Black crystals.  $\text{Hg}_2\text{S}$ , mw: 433.24, mp: decomp.

THR = See mercury compounds, inorganic, and sulfides.

**MERCUROUS TARTRATE.** Yellowish-white crystalline powder.  $\text{Hg}_2\text{C}_4\text{H}_4\text{O}_6$ , mw: 549.29.

THR = See mercury compounds, organic.

**MERCURY.** Silvery liquid, metallic element. Hg, atwt: 200.7, mp:  $-38.89^\circ$ , bp:  $356.9^\circ$ , d: 13.546, vap. press: 1 mm @  $126.2^\circ$ .

Acute tox data: Oral  $\text{LD}_{50}$  (human) = 1429 mg/kg; inhal  $\text{TC}_{50}$  (human) =  $0.17 \text{ mg/m}^3$  for 40 yrs  $\rightarrow$  CNS problems; iv  $\text{TD}_{50}$  (human) = 29 mg/kg;  $\rightarrow$  GI symptoms. [3]

THR = HIGH to CNS, GI tract. See mercury compounds. An exper neo. [3] Reacts violently with acetylene,  $\text{NH}_3$ ,  $\text{BPI}_2$ ,  $\text{Cl}_2$ ,  $\text{ClO}_2$ ,  $\text{CH}_3\text{N}_3$ ,  $\text{Na}_2\text{C}_2$ , nitromethane (butyne diol + acid). [19]

Radiation Hazard: For permissible levels, see Section 5, Table 5A.5. Artificial isotope  $^{203}\text{Hg}$ ,  $T_{1/2} = 47\text{d}$ . Decays to stable  $^{203}\text{Tl}$  by emitting  $\beta$ 's of 0.21 MeV. Emits  $\gamma$ 's of 0.28 MeV.

Disaster Hazard: Dangerous; when heated emits highly toxic fumes.

**MERCURY ACETAMIDE.** White powder.

$\text{CH}_3\text{CONHg}$ , mw: 257.7.

THR = HIGH. See mercury compounds, organic.

**MERCURY ACETATE.** See mercurous acetate or mercuric acetate.

**MERCURY ALANINE.** See mercury- $\alpha$ -aminopropionate.

**MERCURY-p-AMINOPHENOL ARSENATE.** See mercury atoxylate.

**MERCURY- $\alpha$ -AMINOPROPIONATE.** Syn: *mercury alanine*. White crystals, water-sol.

$\text{Hg}[\text{CH}_2\text{CH}(\text{NH}_2)\text{COO}]_2$ , mw: 374.8.

THR = HIGH. See mercury compounds, organic.

**MERCURY, AMMONIATED.** See mercuric ammonium chloride.

**MERCURY ANTIMONY SULFIDE.** Gray-black powder. Mixture of equal parts of black mercury sulfide and gray antimony sulfide.

THR = See mercury compounds, antimony and sulfides.

**MERCURY ARC RADIATION.** A recog carc. [14]

See radiation, ultra-violet.

**MERCURY ATOXYLATE.** Syn: *mercury-p-amino-phenol arsenate*. White powder.  $C_{12}H_{14}O_6N_2As_2Hg$ , mw: 632.71.

THR = HIGH. See arsenic compounds and mercury compounds, organic.

**MERCURY BENZAMIDE.** White powder. $C_6H_5CONHg$ , mw: 319.7.

THR = HIGH. See mercury compounds, organic.

**MERCURY BISULFATE.** See mercuric sulfate.**MERCURY CARBOLATE.** See mercuric phenate.**MERCURY COLLOIDAL.** See mercury.**MERCURY COMPOUNDS, INORGANIC.**

THR = Mercury is a general protoplasmic poison; after absorption it circulates in the blood and is stored in the liver, kidneys, spleen and bone. It is eliminated in the urine, feces, sweat, saliva and milk. In industrial poisoning, the chief effect is upon the CNS and upon the mouth and gums. Colitis has been reported frequently; a nephritis or nephrosis is rarely reported. Fulminate of mercury rarely produces symptoms of systemic poisoning, but frequently causes a dermatitis. The cardinal symptoms of industrial mercury poisoning are stomatitis, tremors, and psychic disturbances. Usually the first complaints are of excessive salivation and pain on chewing; in severe cases there may be gingivitis, with loosening of the teeth, and a dark line on the gum margins, resembling the "lead line." In slow poisoning the salivation may be absent, and the only complaint dryness of the throat and mouth. Tremor and psychic disturbances are commonly seen in the slow chronic form of the poisoning; the tremor is of the intention type, and may be seen when the patient spreads the outstretched fingers or protrudes the tongue, or attempts to perform specified movements. Muscles of the face, hands and arms are chiefly affected. In more severe cases there may also be convulsive or shaking movements; writing is frequently illegible. Hyperactive kneejerks and scanning speech may be present in advanced cases. The psychic disturbance (so called "erethism") includes such changes as loss of memory, insomnia, lack of confidence, irritability, vague fears and depression.

The dermatitis produced by fulminate of mercury takes the form of small, discrete ulcers on the exposed parts, and is usually accompanied by conjunctivitis and inflammation of the mu mem of the nose and throat.

Elemental mercury is probably not absorbed

through the gastrointestinal tract, but many mercury compounds are. A number of mercury compounds, in addition to the fulminate, can cause skin irr and can be absorbed through the skin; they are strong allergens (Section 9).

These are common air contaminants.

Disaster Hazard: Dangerous; when heated to decomp, they emit highly toxic fumes of mercury.

**MERCURY COMPOUNDS, N.O.S. LIQUID.** See mercury compounds, inorganic and organic.

**MERCURY COMPOUNDS, N.O.S. SOLID.** See mercury compounds, inorganic and organic.

**MERCURY COMPOUNDS, ORGANIC.**

THR = The customary grouping of all organic mercurials in a single category is not fully justified by the toxicity of the compounds. Alkyl mercurials have very high toxicity, aryl compounds, particularly the phenyls, are much less toxic, and the organomercurials used in therapeutics are less toxic. The alkyls and aryls commonly cause skin burns and other forms of irr, and both can be absorbed through the skin. Fatal poisoning has occurred due to exposure to alkyl mercurials and permanent damage to the brain has been reported. Extensive human observation on exposure to the phenyl mercurials have shown no greater toxicity than is caused by metallic mercury. In fact, up to the present time there has not been an authenticated case of occupational poisoning due to the phenyl mercurials reported in the literature. Organic mercury compounds, like organic lead compounds, seem to have an affinity for lipid-containing organs, resulting in CNS disturbances such as from tetraethyl lead. These are common air contaminants.

Disaster Hazard: Dangerous; when heated to decomp, they emit highly toxic fumes of mercury.

**MERCURY CYANIDE.** See mercuric cyanide.

**MERCURY ETHYLENE DIAMINE SULFATE.** See sublammin.

**MERCURY FULMINATE, MERCURIC FULMINATE.** See fulminate of mercury, dry.

**MERCURY MORPHINE OLEATE.** An oleaginous mass.

THR = See mercury compounds, organic, and morphine.

**MERCURY NAPHTHENATE.** White crystals; syn: *dinaphthyl mercury*, mw: 454.9, d: 1.929, bp: 249° mp: 188°.

THR = See mercury compounds, organic.

**MERCURY- $\beta$ -NAPHTHOL.** See mercuric naphtholate.

action and may affect other tissues of the body in addition to those of the CNS; in many cases the chlorine derivative is quite toxic. Thus, chloroform, in addition to its narcotic qualities, may cause liver, heart, and kidney damage.

As a general rule, the unsaturated chlorine derivatives are highly narcotic but less toxic than the saturated derivatives, thus causing degenerative changes in the liver and kidneys less frequently. In the saturated group, the narcotic effect is enhanced with an increase in the number of chlorine atoms. However, there is less relationship between the number of chlorine atoms present and the toxicity of the compound.

In dealing with these chlorinated HC, it must be remembered that a toxic action may result from repeated exposure to conc which are too low to produce a narcotic effect, and which, consequently, are too low to give warning of danger. Individual susceptibility is also important when poisoning by this group of solvents is being considered. Certain workmen may be seriously affected by conc that seem to have no effect on fellow employees in the same exposure. A (S)carc of the liver, lung, skin and blood forming tissues. [14]

Disaster Hazard: Dangerous; when heated to decomp, they emit highly toxic fumes of phosgene; they react violently with Al, liquid O<sub>2</sub>, K, Na. [19]

#### CHLORINATED HYDROCARBONS, AROMATIC.

In most instances it is difficult to predict the toxicity of these compounds. However, in the case of most aromatic chlorine compounds, their toxicity is usually no greater, and frequently is less, than that of the corresponding aromatic hydrocarbons, with the notable exception of naphthalene. A (S) carc. [14]

Fire Hazard: U.

Explosion Hazard: React violently with Al, liquid O<sub>2</sub>, K, Na. [19]

Disaster Hazard: Dangerous; when heated to decomp, they emit toxic fumes; they can react with oxidizing materials.

#### CHLORINATED HYDROCHLORIC ETHER. See ethylidene chloride.

#### CHLORINATED LIME. See bleaching powder.

#### CHLORINATED NAPHTHALENES.

THR = HIGH irr via oral, inhal and dermal routes. A (S) carc of liver. [14] Also see chlorinated diphenyls. The action of the chlorinated naphthalenes on the body is quite similar to that of the chlorinated diphenyls, the chief effects being the production of chloracne of the skin and, systematically, an acute yellow atrophy of the liver. [14]

Disaster Hazard: Dangerous; see chlorides.

#### CHLORINATED PHENOLS.

THR = HIGH irr via oral; inhal and dermal routes.

An exper (+) carc. [3, 1]

Disaster Hazard: Dangerous; when heated to decomp, they emit highly toxic fumes.

#### CHLORINATED TRIPHENYLS.

THR = MOD to LOW oral; MOD via dermal routes.

An exper (+) transplacental carc. [3, 1] See also chlorinated diphenyls.

Disaster Hazard: Dangerous; when heated to decomp, they emit highly toxic fumes of chlorides.

**CHLORINE.** Greenish-yellow gas, liquid, or rhombic crystals. Cl<sub>2</sub>, mw: 70.914, mp: -101°, bp: -34.5°, d: (liq) 1.47 @ 0° (3.65 atm), vap. press: 4800 mm @ 20°, vap. d: 2.49.

Acute tox data: Inhal TC<sub>LO</sub> (human) = 15 ppm → pulmonary problems; inhal LD<sub>LO</sub> (humans) = 430 ppm for 30 min; inhal LC<sub>50</sub> (rat) = 293 ppm for 1 hr. [3]

THR = HIGH irr via inhal route. Chlorine is extremely irr to the mu mem of the eyes and the respiratory tract. It combines with moisture to liberate nascent oxygen and form hydrochloric acid. Both these substances, if present in quantity, cause inflammation of the tissues with which they come in contact. If the lung tissues are attacked, pulmonary edema may result. A conc of 3.5 ppm produces a detectable odor; 15 ppm causes immediate irritation of the throat. Conc of 50 ppm are dangerous for even short exposures, 1,000 ppm may be fatal, even where the exposure is brief.

Because of its intensely irritating properties, severe industrial exposure seldom occurs, as the workman is forced to leave exposure before he can be seriously affected. In cases where this is impossible, the initial irr of the eyes and mu mem of the nose and throat is followed by cough, a feeling of suffocation, and later, pain and a feeling of constriction in the chest. If exposure has been severe, pulmonary edema may follow, with rales being heard over the chest. It is a common air contaminant.

Radiation Hazard: For permissible levels, see Section 5, Table 5A.5. Artificial isotope <sup>30</sup>Cl, T<sub>1/2</sub> = 3 × 10<sup>5</sup>y, decays to stable <sup>36</sup>A via β's of 0.71 MeV.

Fire Hazard: Can react to cause fires or explosions upon contact with turpentine, ether, ammonia gas, illuminating gas, hydrocarbons, hydrogen and powdered metals, polydimethyl siloxane, polypropylene, drawing wax, rubber, sulfamic acid, As<sub>2</sub>(CH<sub>3</sub>)<sub>4</sub>, UC<sub>2</sub>, acetaldehyde, C<sub>2</sub>H<sub>2</sub>, alcohols, alkyl isothioureia salts, alkyl phosphines, Al, Sb, As, AsS<sub>2</sub>, AsH<sub>3</sub>, Ba<sub>3</sub>P<sub>2</sub>, C<sub>6</sub>H<sub>6</sub>, Bi, B, BPI<sub>2</sub>, B<sub>2</sub>S<sub>3</sub>, brass, BrF<sub>3</sub>, Ca, (CaC<sub>2</sub> + KOH), Ca(ClO<sub>2</sub>)<sub>2</sub>, Ca<sub>3</sub>N<sub>2</sub>, Ca<sub>3</sub>P<sub>2</sub>, C, CS<sub>2</sub>,

Cs, CsHC<sub>2</sub>, Co<sub>2</sub>O, Cs<sub>3</sub>N, (C + Cr(OC<sub>2</sub>)<sub>2</sub>), Cu, CuH<sub>2</sub>, CuC<sub>2</sub>, dialkyl phosphines, diborane, dibutyl phthalate, Zn(C<sub>2</sub>H<sub>5</sub>)<sub>2</sub>, C<sub>2</sub>H<sub>6</sub>, C<sub>2</sub>H<sub>4</sub>, ethylene imine, C<sub>2</sub>H<sub>5</sub>PH<sub>2</sub>, F<sub>2</sub>, Ge, glycerol, (NH<sub>2</sub>)<sub>2</sub>, (H<sub>2</sub>O + KOH), I<sub>2</sub>, hydroxylamine, Fe, FeC<sub>2</sub>, Li, Li<sub>2</sub>C<sub>2</sub>, Li<sub>4</sub>C<sub>2</sub>, Mg, Mg<sub>2</sub>P<sub>3</sub>, Mn, Mn<sub>3</sub>P<sub>2</sub>, HgO, HgS, Hg, Hg<sub>3</sub>P<sub>2</sub>, CH<sub>4</sub>, Nb, NI<sub>3</sub>, OF<sub>2</sub>, H<sub>2</sub>SiO<sub>3</sub>, (OF<sub>2</sub> + Cu), PH<sub>3</sub>, P, P(SNC)<sub>3</sub>, P<sub>2</sub>O<sub>3</sub>, PCB's, K, KHC<sub>2</sub>, KH, Ru, RuHC<sub>2</sub>, Si, SiH<sub>2</sub>, Ag<sub>2</sub>O, Na, NaHC<sub>2</sub>, Na<sub>2</sub>C<sub>2</sub>, SnF<sub>2</sub>, SbH<sub>3</sub>, Sr<sub>3</sub>P, Te, Th, Sn, WO<sub>2</sub>, U, V, Zn, ZrC<sub>2</sub>. [19]

Disaster Hazard: Dangerous; when heated, emits highly toxic fumes; will react with water or steam to produce toxic and corrosive fumes of hydrogen chloride.

**CHLORINE AZIDE.** Syn: *chlor(o)azide*. An explosive gas. ClN<sub>3</sub>, mw: 77.48.

THR = HIGH irr via inhal route.

Explosion Hazard: Severe, when shocked, exposed to heat, flame or 1,3-butadiene, C<sub>2</sub>H<sub>6</sub>, C<sub>2</sub>H<sub>4</sub>, CH<sub>4</sub>, C<sub>3</sub>H<sub>8</sub>. [19]

Disaster Hazard: Dangerous; shock can explode it; when heated to decomp, emits highly toxic fumes of chlorine and NO<sub>x</sub>; will react with water or steam to produce toxic and corrosive fumes of hydrogen chloride.

**CHLORINE CYANIDE.** See cyanogen chloride.

**CHLORINE DIOXIDE.** Red-yellow gas or orange-red crystals. ClO<sub>2</sub>, mw: 67.5, mp: -59°, bp: 9.9° @ 731 mm explodes, d: 3.09 g/liter @ 11°.

Acute tox data: Inhal TC<sub>Lo</sub> (human) = 19 ppm. [3]

THR = HIGH irr via inhal route.

Fire Hazard: Dangerous, a powerful oxidizer.

Disaster Hazard: Dangerous; reacts violently with P, KOH, S, conc @ from 0.1 to 1 atm of > 10% in air explodes, also F<sub>2</sub>Hg, organic matter, NHF<sub>2</sub>. [19]

When heated to decomp, emits highly toxic fumes of chlorine; will react with water or steam to produce toxic and corrosive fumes of hydrochloric acid.

**CHLORINE DIOXIDE HYDRATE, FROZEN.** See chlorine dioxide.

**CHLORINE FLUOROXIDE.** ClOF, mw: 70.5.

THR = HIGH irr via inhal route. Explosively unstable. [19]

**CHLORINE HEPTAOXIDE.** Colorless oil. Cl<sub>2</sub>O<sub>7</sub>, mw: 182.91, mp: -91.5°, bp: 82°, vap. press: 100 mm @ 29.1°.

THR = HIGH irr poison. Very unstable.

Fire Hazard: Dangerous; a very powerful oxidizing agent.

Explosion Hazard: Severe, when shocked or exposed to heat or flame.

Disaster Hazard: Dangerous; shock or heat will explode it; on decomp, emits highly toxic fumes chlorine; will react with water or steam to produce toxic and corrosive fumes.

**CHLORINE HYDRATE.** Rhombic light yellow crystals. Cl<sub>2</sub> · 8H<sub>2</sub>O, mw: 215.04, mp: decomp @ 9.6°, 1.23.

THR = HIGH irr and tox. See also chlorine.

Disaster Hazard: Dangerous; see chlorine; will react with water or steam to produce toxic and corrosive fumes.

**CHLORINE MONOFLUORIDE.** Nearly colorless gas. ClF, mw: 54.46, mp: -154 ± 0.5°, bp: -100.8°, 1.62 @ -100°.

THR = HIGH irr via inhal route. A very irritant. Very unstable. Reacts violently with water, Te, organic matter. [19] See fluorides and chlorine.

**CHLORINE MONOXIDE.** Yellow-red gas or reddish brown liquid. Cl<sub>2</sub>O, mw: 86.91, mp: -20°, bp: 2.2°, d: 3.89 g/liter @ 0°, lel = 23.5%, uel = 100%.

THR = See chlorine.

Explosion Hazard: Severe, when shocked or exposed to heat of 39°. Reacts violently with NH<sub>3</sub>, S, Sb<sub>2</sub>S<sub>3</sub>, Se, BaS, Ca<sub>3</sub>P<sub>2</sub>, C, CS<sub>2</sub>, charcoal, H<sub>2</sub>S, Hg, metal sulfides, NO, organic matter, PH<sub>3</sub>, P, S, Sn, SnS<sub>2</sub>, turpentine. [19]

Fire Hazard: Very dangerous via heat, flame or reducing agents.

Disaster Hazard: Dangerous; see chlorine; will react with water or steam to produce toxic and corrosive fumes. When heated it explodes.

**CHLORINE TETROXIDE.** See chlorine dioxide.

**CHLORINE TETROXYFLUORIDE.** See fluorine perchlorate.

**CHLORINE TRIFLUORIDE.** Colorless gas to yellow liquid, sweet odor, ClF<sub>3</sub>, mw: 92.46, mp: -83°, bp: 11.8°, d: 1.77 @ 13°.

THR = HIGH irr via inhal route. See also fluorides, chlorine and fluorine.

Fire Hazard: Dangerous. Spont flam.

Explosion Hazard: Reacts violently with organic matter, glass wool, acetic acid, Al, Sb, As, Cu, Fe, I<sub>2</sub>, Ir, Fe, Pb, Mg, Mo, Os, P, K, Rh, Se, Si, Na, S, Te, Sn, W, Zn, oxides, NH<sub>3</sub>, benzene, C, CrO<sub>3</sub>, ether, graphite, H<sub>2</sub>S, HgI<sub>2</sub>, HNO<sub>3</sub>, K<sub>2</sub>CO<sub>3</sub>, KI, rubber, AgNO<sub>3</sub>, NaOH, H<sub>2</sub>SO<sub>4</sub>, V<sub>2</sub>P<sub>5</sub>, water, WO<sub>3</sub>. [19]

Disaster Hazard: Dangerous; when heated to decompose or on contact with acid or acid fumes, emits highly toxic fumes; will react with water or steam to produce much heat and toxic and corrosive fumes; acts vigorously with reducing materials.

**DRAFT**  
**GRAPHICAL EXPOSURE MODELING SYSTEM**  
**(GEMS)**  
**USER'S GUIDE**

**Prepared for:**

**U.S. ENVIRONMENTAL PROTECTION AGENCY  
OFFICE OF PESTICIDES AND TOXIC SUBSTANCES  
EXPOSURE EVALUATION DIVISION**

**Task No. 4**

**Contract No. 68016618**

**William Wood - Project Officer**

**Loren Hall - Task Manager**

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**Submitted: June 25, 1984**

(Selected Files)

GAGE

data on the following environmental parameters: agriculture, climate, vegetation, forestry, air quality, land, natural areas, population, water quality, terrain (soils) and wildlife.

The GAGE dataset contains primarily stream flow rates monitored consistently by approximately 99,500 stream gaging stations throughout the country, and some estimated flows.

IFDDIR

IFDDIR contains industrial facility data for approximately 28,000 direct dischargers excluding publicly owned treatment works (POTWs)

IFDIND

IFDIND contains limited industrial facility data for approximately 12,000 indirect dischargers which discharge through other facilities, usually POTWs.

Master Area Reference File  
(MARF) 1980 census

This dataset contains a variety of location identification information, population count by race, the number of occupied and owner-occupied

TABLE 2-2. GEMS Datasets (Continued)

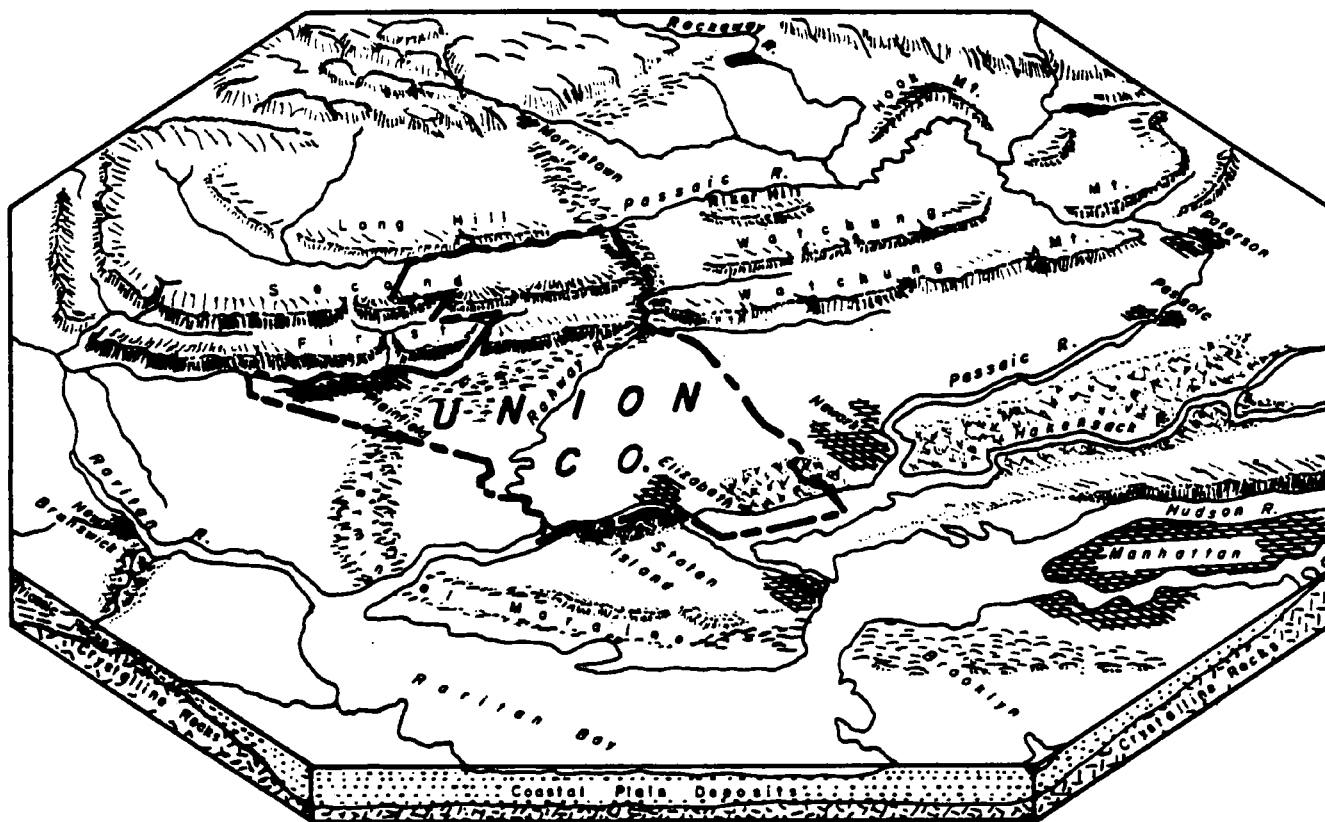
DATASET NAME	DESCRIPTION
Meteorological Data	number of families for all the enumeration district/block groups for continental USA, Hawaii, and Alaska.  Several meteorological data files are contained in this category: (1) the Stability Tabular Array (STAR) data file has meteorological data for 394 first order weather stations in the continental USA, (2) A master index file (STARSEL), and (3) An auxiliary file (AUX).
Publicly Owned Treatment Works (POTWs)	This dataset contains 1982 survey data on the unit treatment process, the influent and effluent and hour rates, and the population served by 33,000 publicly owned treatment works around the country.

APR 19 1982

# GEOLOGY AND GROUND-WATER RESOURCES OF UNION COUNTY, NEW JERSEY

U.S. GEOLOGICAL SURVEY

Water-Resources Investigations 76-73



Prepared in cooperation with  
NEW JERSEY DEPARTMENT OF ENVIRONMENTAL  
PROTECTION, DIVISION OF WATER RESOURCES



# GEOLOGY AND GROUND-WATER RESOURCES OF UNION COUNTY, NEW JERSEY

By Bronius Nemickas

## ABSTRACT

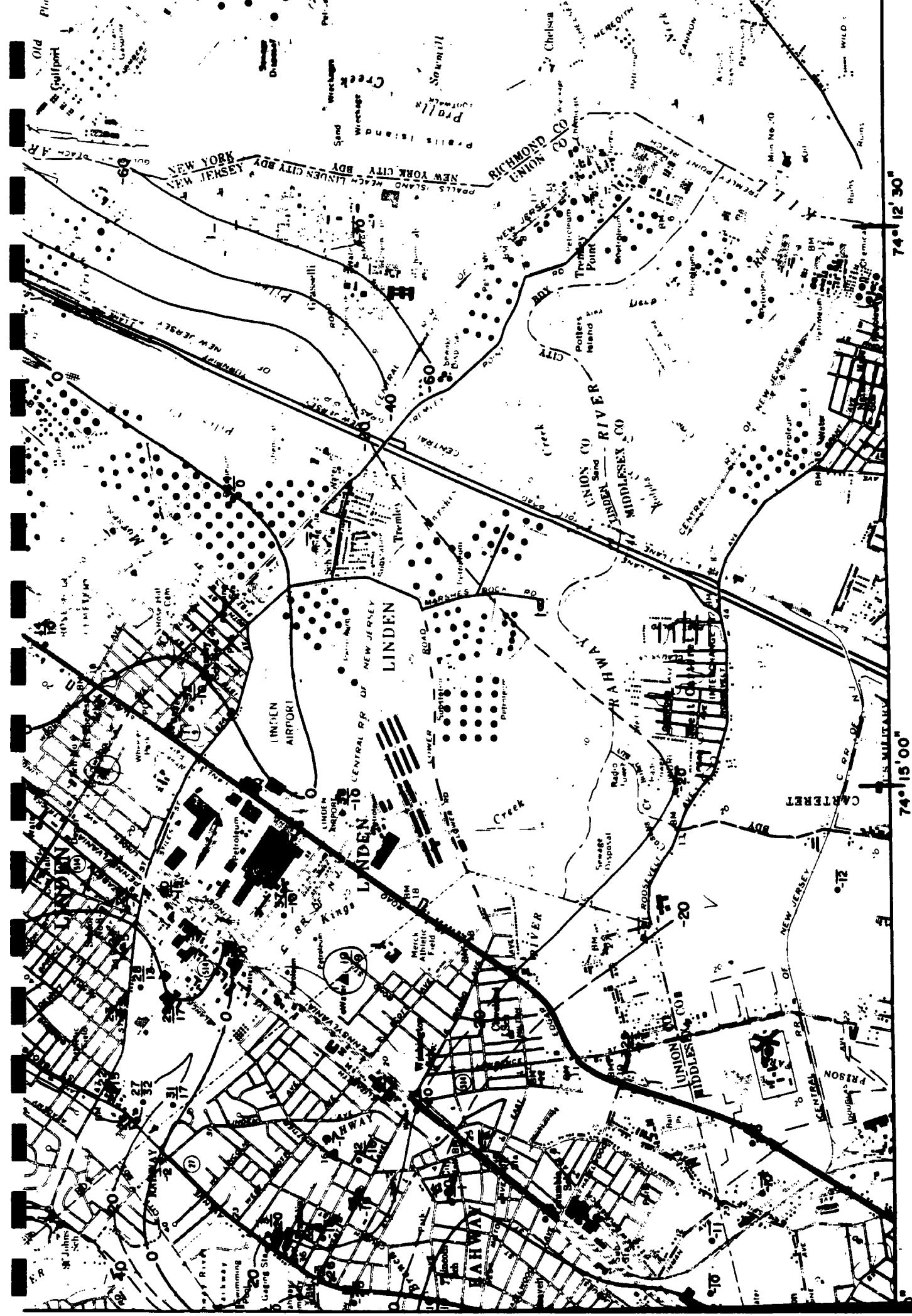
Ground water in Union County occurs in the voids of unconsolidated stratified drift deposits of Pleistocene age and in the joints and fractures of the Brunswick Formation and Watchung Basalt of Late Triassic age.

Wells (6 inches or greater in diameter) in the stratified drift deposits yield from 180 to 690 gpm (gallons per minute). The specific capacity of these wells range from 4.0 to 69 and average 19 gpm per foot of drawdown. High yielding wells in the stratified drift deposits are located primarily in the valley-fill deposits in the bedrock valleys that were cut by streams before the Wisconsin Glaciation in Pleistocene time.

Wells (6 inches or greater in diameter) in the Brunswick Formation yield from 12 to 870 gpm; the most productive water-bearing zones are commonly between depths of 200 to 600 feet. The specific capacity of wells in the Brunswick Formation range from 0.04 to 25 and average 3.5 gpm per foot of drawdown. Wells (6 inches or greater in diameter) in the Watchung Basalt yield from 20 to 164 gpm and the specific capacities of the wells range from 0.24 to 2.5 and average 1.2 gpm per foot of drawdown.

The quality of ground water from the stratified drift deposits is generally acceptable for most uses. Hardness ranges from 110 mg/l (milligrams per liter) to 210 mg/l. The pH ranges from 6.4 (slightly acidic) to 8.5 (slightly alkaline). The quality of ground water from the Brunswick Formation is acceptable throughout the country for most uses. Hardness ranges from 71 mg/l to 1193 mg/l. The pH ranges from 6.3 to 8.5. Calcium and magnesium are the predominant cations. Sulphate is the predominant anion in water having dissolved solids greater than 500 mg/l and bicarbonate is the predominant anion in water having dissolved solids less than 500 mg/l.

Withdrawals of ground water from all aquifers in Union County by public supply are estimated to average about 16.0 mgd (million gallons per day) in 1968. The greatest quantity of ground water is withdrawn from the Brunswick Formation--about 11.6 mgd for public supply in 1968. The stratified drift aquifers yield substantial quantities of water--about 4.4 mgd in 1968--but the deposits are of limited extent. The Watchung Basalt is of minor importance as an aquifer in Union County.



Wells in Union County, New Jersey

New York State Department of Environmental Conservation

RECEIVED

MAY 20 1985

Henry G. Williams  
Commissioner

Endangered Species Unit  
Wildlife Resources Center  
Delmar, NY 12054-9767

NUS CORPORATION  
REGION II  
SENT TO \_\_\_\_\_

16 May 1985

Mr. Joe Katofy  
NUS Corporation  
Raritan Plaza 3  
Fieldcrest Avenue  
Edison, NJ 08837

Dear Mr. Katofy,

With reference to your request for information concerning peregrine falcon use of the Tremley Point area, I feel it is very likely that peregrines could hunt in the wetlands near L.C.P. Chemicals in Linden.

Peregrines feed almost entirely on birds caught in open areas such as wetlands and fields.

We have records of single peregrines this year at the Goethals Bridge and Outerbridge Crossing, which are only a few miles away. There is also a pair nesting at the Verrazano Narrows Bridge. Last year there was also an unsuccessful pair of falcons at the Outerbridge.

If I can provide any additional information, please do not hesitate to contact me.

Sincerely,

*Barbara Allen Loucks*

Barbara Allen Loucks  
Research Scientist I  
Endangered Species Unit



RECEIVED

NOV 26 1984

State of New Jersey

NUS CORPORATION  
REGION II

DEPARTMENT OF ENVIRONMENTAL  
PROTECTION

SENT TO \_\_\_\_\_

DIVISION OF  
FISH, GAME AND WILDLIFE  
RUSSELL A. COOKINGHAM  
DIRECTOR

PLEASE REPLY TO:  
CN 400  
TRENTON, NEW JERSEY 08625

November 15, 1984

Charlotte Ryden  
NUS Corporation  
Raritan Plaza III  
King George Rd.  
Edison, NJ 08837

Re: Important biological resources in the vicinity of Perth Amboy

Dear Ms. Ryden;

As we discussed over the phone, the only particularly sensitive species known to reside in or use the area of concern is the peregrine falcon. A pair of falcons attempted unsuccessfully to nest on Outer-bridge Crossing during the spring/summer of 1984. These birds are likely offspring from birds reintroduced along the east coast to replace the extinct east coast population of Falco peregrinus. This population disappeared during the late 1950's, early 1960's primarily as a result of pesticide (DDT) contamination. While there is no evidence that industrial pollution and toxic wastes are entering the food chain and influencing peregrine breeding, I would not consider such a finding surprising.

Peregrines residing in the vicinity of Perth Amboy, Staten Island, and Woodbridge undoubtedly feed on birds (pigeons, gulls, shorebirds, etc.) which are likely contaminated to some degree from local sources of chemical pollution.

Due to the area's highly developed and industrialized status it is unlikely that other potentially fragile species occur in the area of concern.

I hope the information I have provided is of some help to you. Should you need additional information please do not hesitate to contact me.

Sincerely,

C. David Jenkins  
Central Regional Zoologist  
Endangered and Nongame Species Program

CDJ:cy

c; J. Frier-Murza

ANALYTICAL DATA  
 LCP CHEMICALS, LINDEN, NJ  
 SAMPLING DATA : 9/27/84  
 CASE NUMBER : 3348

INORGANICS

SAMPLE NUMBER	MB0839	MB0841	MB0851
MATRIX	WATER	WATER	WATER
UNITS	UG/L	UG/L	UG/L
Aluminum	181.000	532.000	767.000
Antimony	161	188	335
Arsenic	945	3790	4280
Barium	6700	15400	16300
Beryllium	12	12	52
Cadmium	89	7.2	154
Chromium	273	502	1350
Cobalt	200	326	899
Copper	444	1300	1860
Iron	204.000	297.000	2110000
Lead	284	726	1072
Manganese	9040	12400	61500
Mercury	253	116	1.4
Nickel	432	688	1940
Selenium	383	35	439
Silver		43	17
Thallium			41
Tin	368	5	662
Vanadium	222	501	2940
Zinc	1590	2640	12200

NOTES:

Blank space - compound analyzed for but not detected  
 E - analysis did not pass QA/QC requirements  
 J - compound present below the specified detection

ANALYTICAL DATA  
 LCP CHEMICALS, LINDEN, NJ  
 SAMPLING DATA : 9/27/84  
 CASE NUMBER : 3348

INORGANICS

SAMPLE NUMBER	MB0145	MB0146	MB0147	MB0148
MATRIX	WATER	WATER	WATER	SOIL
UNITS	UG/L	UG/L	UG/L	MG/KG
Aluminum	199	323		1380
Antimony	65	87		
Arsenic	157	E	16	54
Barium	420	480		150
Beryllium				
Cadmium	1.0	70		0.99
Chromium				13
Cobalt	51	108		2.5
Copper		134		28
Iron	921	1960		7250
Lead	18	77		30
Manganese	91	247		92
Mercury	20	212		12.5
Nickel	97	177		10
Selenium	131	249		0.64
Silver	412			0.61
Thallium				
Tin	E	1691	29	1.9
Vanadium				21
Zinc	E	1740	17	59

NOTES:

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ANALYTICAL DATA  
 LCP CHEMICALS, LINDEN, NJ  
 SAMPLING DATA : 9/27/84  
 CASE NUMBER : 3348

INORGANICS

SAMPLE NUMBER	MB0149	MB0150	MB0151	MB0152
MATRIX	SOIL	SOIL	SOIL	WATER
UNITS	MG/KG	MG/KG	MG/KG	UG/L
Aluminum	2350	3140	4220	
Antimony	1.0			
Arsenic	44	26	50	
Barium	3300	77	5114	
Beryllium				
Cadmium	3.0		2.6	
Chromium	8.4	6.5	12	
Cobalt	4.8			
Copper	41	9.0	22	
Iron	6590	5590	9690	
Lead	784	185	128	
Manganese	94	8.6	51	
Mercury	170	2.6	53	
Nickel	12		7.9	
Selenium	0.39		0.28	
Silver	0.72			
Thallium				
Tin	6.3			33
Vanadium	11	14	16	
Zinc	152	7	171	19

NOTES:

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ANALYTICAL DATA  
 LCP CHEMICALS, LINDEN, NJ  
 SAMPLING DATE: 9/27/84  
 CASE: 3348

VOLATILES

SAMPLE NUMBER	B3750	B3751	B3752	B3754
MATRIX	WATER	WATER	WATER	WATER
UNITS	UG/L	UG/L	UG/L	UG/L
Chloromethane				
Bromomethane				
Vinyl Chloride			J	
Chloroethane				
Methylene Chloride	E	E	E	E
Acetone	E	2400B	180B	450B
Carbondisulfide				
1,1-Dichloroethene				
1,2-Dichloroethane				
Trans-1,2-Dichloroethene			4	
Chloroform				E
1,2-Dichloroethane				42
2-Butanone				
1,1,1-Trichloroethane				
Carbon Tetrachloride				
Vinyl Acetate				
Bromodichloromethane				3
1,1,2,2-Tetrachloroethane				J
1,2-Dichloropropane				
Trans-1,3-Dichloropropene				
Trichloroethene			2	
Dibromochloromethane				3
1,1,2-Trichloroethane				J
Benzene				24
Cis-1,3-Dichloropropene				
2-Chloroethylvinylether				
Bromoform				10
2-Hexanone				3
4-Methyl-2-Pentanone				6
Tetrachloroethene			1	1
Toluene	E	E	E	10B
Chlorobenzene				14
Ethylbenzene				E
Styrene			E	
Total Xylenes			E	E

NOTES:

Blank space - compound analyzed for but not detected

E - analysis did not pass QA/QC requirements

J - compound present below the specified detection limit

ANALYTICAL DATA  
 LCP CHEMICALS, LINDEN, NJ  
 SAMPLING DATE: 9/27/84  
 CASE: 3348

VOLATILES

SAMPLE NUMBER	B3785	B3786	B3787	B3788
MATRIX	WATER	WATER	SOIL	SOIL
UNITS	UG/L	UG/L	UG/KG	UG/KG
Chloromethane			E	E
Bromomethane			E	E
Vinyl Chloride			E	E
Chloroethane			E	E
Methylene Chloride	E	170B	E	E
Acetone	E		E	E
Carbondisulfide			E	E
1,1-Dichloroethene			E	E
1,2-Dichloroethane			E	E
Trans-1,2-Dichloroethene			E	E
Chloroform	57	1	E	E
1,2-Dichloroethane			E	E
2-Butanone			E	E
1,1,1-Trichloroethane			E	E
Carbon Tetrachloride			E	E
Vinyl Acetate			E	E
Bromodichloromethane	20		E	E
1,1,2,2-Tetrachloroethane			E	E
1,2-Dichloropropene			E	E
Trans-1,3-Dichloropropene			E	E
Trichloroethene			E	E
Dibromochloromethane	25		E	E
1,1,2-Trichloroethane			E	E
Benzene			E	E
Cis-1,3-Dichloropropene			E	E
2-Chloroethylvinylether			E	E
Bromoform	31		E	E
2-Hexanone			E	E
4-Methyl-2-Pentanone			E	E
Tetrachloroethene	2		E	E
Toluene	E	E	E	E
Chlorobenzene	5		E	E
Ethylbenzene			E	E
Styrene			E	E
Total Xylenes			E	E

NOTES:

Blank space - compound analyzed for but not detected  
 E - analysis did not pass QA/QC requirements  
 J - compound present below the specified detection limit

ANALYTICAL DATA  
 LCP CHEMICALS, LINDEN, NJ  
 SAMPLING DATE: 7/27/94  
 CASE: 3348

VOLATILES

SAMPLE NUMBER	B3789	B3790	B3791
MATRIX	SOIL	SOIL	SOIL
UNITS	UG/KG	UG/KG	UG/KG
Chloromethane	E	E	E
Bromomethane	E	E	E
Vinyl Chloride	E	E	E
Chloroethane	E	E	E
Methylene Chloride	E	E	E
Acetone	E	E	E
Carbondisulfide	E	E	E
1,1-Dichloroethene	E	E	E
1,2-Dichloroethane	E	E	E
Trans-1,2-Dichloroethene	E	E	E
Chloroform	E	E	E
1,2-Dichloroethane	E	E	E
2-Butanone	E	E	E
1,1,1-Trichloroethane	E	E	E
Carbon Tetrachloride	E	E	E
Vinyl Acetate	E	E	E
Bromodichloromethane	E	E	E
1,1,2,2-Tetrachloroethane	E	E	E
1,2-Dichloropropane	E	E	E
Trans-1,3-Dichloropropene	E	E	E
Trichloroethene	E	E	E
Dibromochloromethane	E	E	E
1,1,2-Trichloroethane	E	E	E
Benzene	E	E	E
Cis-1,3-Dichloropropene	E	E	E
2-Chloroethylvinylether	E	E	E
Bromoform	E	E	E
2-Hexanone	E	E	E
4-Methyl-2-Pentanone	E	E	E
Tetrachloroethene	E	E	E
Toluene	E	E	E
Chlorobenzene	E	E	E
Ethylbenzene	E	E	E
Styrene	E	E	E
Total Xylenes	E	E	E

NOTES:

Blank space - compound analyzed for but not detected  
 E - analysis did not pass QA/QC requirements  
 J - compound present below the specified detection

## ANALYTICAL DATA

LCP CHEMICAL CO. LINDEN, NJ

SAMPLING DATA : 9/27/84

CASE NUMBER : 3348

## SEMI-VOLATILES

SAMPLE NUMBER	D3750	D3751	D3752	D3754
MATRIX	WATER	WATER	WATER	WATER
UNITS	UG/L	UG/L	UG/L	UG/L
N-Nitrosodimethylamine	E	E	E	E
Phenol	E	E	E	E
Aniline	E	E	E	E
Bis(2-Chloroethyl)Ether	E	E	E	E
2-Chlorophenol	E	E	E	E
1,3-Dichlorobenzene	E	E	E	E
1,4-Dichlorobenzene	E	E	E	E
Benzyl Alcohol	E	E	E	E
1,2-Dichlorobenzene	E	E	E	E
2-Methylphenol	E	E	E	E
Bis(2-Chloroisopropyl)Ether	E	E	E	E
1-Methylphenol	E	E	E	E
N-Nitroso-Di-n-Propylamine	E	E	E	E
Hexachloroethane	E	E	E	E
Nitrobenzene	E	E	E	E
Isoeugenol	E	E	E	E
3-Nitrophenol	E	E	E	E
2,4-Dimethylphenol	E	E	E	E
Benzoic Acid	E	E	E	E
Bis(2-Chloroethyl)Methane	E	E	E	E
2,1-Dichlorophenol	E	E	E	E
1,2,1-Trichlorobenzene	E	E	E	E
Naphthalene	E	E	E	E
4-Chloroaniline	E	E	E	E
Hexachlorobutadiene	E	E	E	E
4-Chloro-3-Methylphenol	E	E	E	E
2-Methylnaphthalene	E	E	E	E
Hexachlorocyclopentadiene	E	E	E	E
2,4,6-Trichlorophenol	E	E	E	E
2,4,5-Trichlorophenol	E	E	E	E
2-Chloronaphthalene	E	E	E	E
2-Nitroaniline	E	E	E	E
Bisethyl Phthalate	E	E	E	E
Acenaphthylene	E	E	E	E
3-Nitroaniline	E	E	E	E
Acenaphthene	E	E	E	E
2,1-Dinitrophenol	E	E	E	E
4-Nitrophenol	E	E	E	E
Dibenzofuran	E	E	E	E
2,4-Dinitrotoluene	E	E	E	E
2,6-Dinitrotoluene	E	E	E	E
Diethyl Phthalate	E	E	E	E
4-Chlorophenyl-phenylether	E	E	E	E
Fluorene	E	E	E	E
4-Nitroaniline	E	E	E	E
4,6-Dinitro-2-Methylphenol	E	E	E	E
N-Nitrosodiphenylamine	E	E	E	E
4-Bromophenyl-Phenylether	E	E	E	E
Hexachlorobenzene	E	E	E	E
Pentachlorophenol	E	E	E	E
Chlorobenzene	E	E	E	E
Methylolene	E	E	E	E
Di-n-Butylphthalate	E	E	E	E

## ANALYTICAL DATA

LCP CHEMICALS, LINDEN, NJ

SAMPLING DATA : 7/27/84

CASE NUMBER : 3348

## SEMI-VOLATILES

SAMPLE NUMBER	B3750	B3751	B3752	B3754
MATRIX	WATER	WATER	WATER	WATER
UNITS	UG/L	UG/L	UG/L	UG/L
Fluoranthene	E	E	E	E
Benzo(a)fluoranthene	E	E	E	E
Pyrene	E	E	E	E
Bis(2-ethylhexyl)phthalate	E	E	E	E
3,3'-Dichlorobenzidine	E	E	E	E
Benzo(a)Anthracene	E	E	E	E
Bis(2-Ethylhexyl)Phthalate	E	E	E	E
Chrysene	E	E	E	E
Di-n-Octyl Phthalate	E	E	E	E
Benzo(b)Fluoranthene	E	E	E	E
Benzo(k)Fluoranthene	E	E	E	E
Benzo(a)Pyrene	E	E	E	E
Indeno(1,2,3-cd)Pyrene	E	E	E	E
Dibenzo(a,h)Anthracene	E	E	E	E
Benzo(ghi)Perylene	E	E	E	E

## NOTES:

Blank space - compound analyzed for but not detected

E - analysis did not pass QA/QC requirements.

J - compound present below the specified detection limit

ANALYTICAL DATA  
 LCP CHEMICALS, LINDEN, NJ  
 SAMPLING DATA : 9/27/84  
 CASE NUMBER : 3348

SEMI-VOLATILES

SAMPLE NUMBER MATRIX UNITS	B3785 WATER UG/L	B3786 WATER UG/L	B3787 SOIL UG/KG	B3788 SOIL UG/KG
N-Nitrosodimethylamine	E	E	E	E
Phenol	E	E	E	E
Aniline	E	E	E	E
Bis(2-Chloroethyl)Ether	E	E	E	E
2-Chlorophenol	E	E	E	E
1,3-Dichlorobenzene	E	E	E	E
1,4-Dichlorobenzene	E	E	E	E
Benzyl Alcohol	E	E	E	E
1,2-Dichlorobenzene	E	E	E	E
2-Methylphenol	E	E	E	E
Bis(2-Chloroisopropyl)Ether	E	E	E	E
4-Methylphenol	E	E	E	E
N-Nitroso-Di-n-Propylamine	E	E	E	E
Hexachloroethane	E	E	E	E
Nitrobenzene	E	E	E	E
Isophorone	E	E	E	E
2-Nitrophenol	E	E	E	E
2,4-Dimethylphenol	E	E	E	E
Benzoic Acid	E	E	E	E
Bis(2-Chloroethoxy)Methane	E	E	E	E
2,4-Dichlorophenol	E	E	E	E
1,2,4-Trichlorobenzene	E	E	E	E
Naphthalene	E	E	E	E
4-Chloroaniline	E	E	E	E
Hexachlorobutadiene	E	E	E	E
4-Chloro-3-Methylphenol	E	E	E	E
2-Methylnaphthalene	E	E	E	E
Hexachlorocyclopentadiene	E	E	E	E
2,4,6-Trichlorophenol	E	E	E	E
2,4,5-Trichlorophenol	E	E	E	E
2-Chloronaphthalene	E	E	E	E
2-Nitroaniline	E	E	E	E
Dimethyl Phthalate	E	E	E	E
Acenaphthylene	E	E	E	E
3-Nitroaniline	E	E	E	E
Acenaphthene	E	E	E	E
2,4-Dinitrophenol	E	E	E	E
4-Nitrophenol	E	E	E	E
Dibenzofuran	E	E	E	E
2,4-Dinitrotoluene	E	E	E	E
2,6-Dinitrotoluene	E	E	E	E
Diethyl Phthalate	E	E	E	E
4-Chlorophenyl-phenylether	E	E	E	E
Fluorene	E	E	E	E
4-Nitroaniline	E	E	E	E
4,6-Dinitro-2-Methylphenol	E	E	E	E
N-Nitrosodiphenylamine	E	E	E	E
4-Bromophenyl-Phenylether	E	E	E	E
Hexachlorobenzene	E	E	E	E
Pentachlorophenol	E	E	E	E
Phenanthrene	E	E	E	E
Anthracene	E	E	E	E
Di-n-Butylphthalate	E	E	E	E

ANALYTICAL DATA  
 LCP CHEMICALS, LINDEN, NJ  
 SAMPLING DATA : 9/27/84  
 CASE NUMBER : 3348

SEMI-VOLATILES

SAMPLE NUMBER	B3785	B3786	B3787	B3788
MATRIX	WATER	WATER	SOIL	SOIL
UNITS	UG/L	UG/L	UG/KG	UG/KG
Fluoranthene	E	E	E	E
Benzydine	E	E	E	E
Pyrene	E	E	E	E
Butylbenzylphthalate	E	E	E	E
3,3'-Dichlorobenzidine	E	E	E	E
Benzo(a)Anthracene	E	E	E	E
Bis(2 Ethylhexyl)Phthalate	E	E	E	E
Chrysene	E	E	E	E
Di-n-Octyl Phthalate	E	E	E	E
Benzo(b)Fluoranthene	E	E	E	E
Benzo(k)Fluoranthene	E	E	E	E
Benzo(a)Pyrene	E	E	E	E
Indeno(1,2,3-cd)Pyrene	E	E	E	E
Dibenzo(a,h)Anthracene	E	E	E	E
Benzo(ghi)Perylene	E	E	E	E

NOTES:

Blank space - compound analyzed for but not detected  
 E - analysis did not pass QA/QC requirements  
 U - compound present below the specified detection limit

ANALYTICAL DATA  
 LCP CHEMICALS, LINDEN, NJ  
 SAMPLING DATA : 9/27/84  
 CASE NUMBER : 3348

SEMI-VOLATILES

SAMPLE NUMBER	B3789	B3790	B3791
MATRIX	SOIL	SOIL	SOIL
UNITS	UG/KG	UG/KG	UG/KG
N-Nitrosodimethylamine	E	E	E
Phenol	E	E	E
Aniline	E	E	E
Bis(2-Chloroethyl)Ether	E	E	E
2-Chlorophenol	E	E	E
1,3-Dichlorobenzene	E	E	E
1,4-Dichlorobenzene	E	E	E
Benzyl Alcohol	E	E	E
1,2-Dichlorobenzene	E	E	E
2-Methylphenol	E	E	E
Bis(2-Chloroisopropyl)Ether	E	E	E
4-Methylphenol	E	E	E
N-Nitroso-Bi-n-Propylamine	E	E	E
Hexachloroethane	E	E	E
Nitrobenzene	E	E	E
Isophorone	E	E	E
2-Nitrophenol	E	E	E
2,4-Dimethylphenol	E	E	E
Benzoic Acid	E	E	E
Bis(2-Chloroethoxy)Methane	E	E	E
2,4-Dichlorophenol	E	E	E
1,2,4-Trichlorobenzene	E	E	E
Naphthalene	E	E	E
4-Chloroaniline	E	E	E
Hexachlorobutadiene	E	E	E
4-Chloro-3-Methylphenol	E	E	E
2-Methylnaphthalene	E	E	E
Hexachlorocyclopentadiene	E	E	E
2,4,6-Trichlorophenol	E	E	E
2,4,5-Trichlorophenol	E	E	E
2-Chloronaphthalene	E	E	E
2-Nitroaniline	E	E	E
Dimethyl Phthalate	E	E	E
Acenaphthylene	E	E	E
3-Nitroaniline	E	E	E
Acenaphthene	E	E	E
2,4-Dinitrophenol	E	E	E
4-Nitrophenol	E	E	E
Dibenzofuran	E	E	E
2,4-Dinitrotoluene	E	E	E
2,6-Dinitrotoluene	E	E	E
Diethyl Phthalate	E	E	E
4-Chlorophenyl-phenylether	E	E	E
Fluorene	E	E	E
4-Nitroaniline	E	E	E
3,5-Dinitro-2-Methylphenol	E	E	E
N-Nitrosodiphenylamine	E	E	E
4-Bromophenyl-Phenylether	E	E	E
Hexachlorobenzene	E	E	E
Pentachlorophenol	E	E	E
Phenanthrene	E	E	E
Anthracene	E	E	E
Di-n-Butylphthalate	E	E	E

## ANALYTICAL DATA

LCP CHEMICALS, LINDEN, NJ

SAMPLING DATA : 9/27/83

CASE NUMBER : 3348

## SEMI-VOLATILES

SAMPLE NUMBER	B3789	B3790	B3791
MATRIX	SOIL	SOIL	SOIL
UNITS	UG/KG	UG/KG	UG/KG
Fluoranthene	E	E	E
Benzidine	E	E	E
Pyrene	E	E	E
Butylbenzylphthalate	E	E	E
3,3'-Dichlorobenzidine	E	E	E
Benzo(a)Anthracene	E	E	E
Bis(2 Ethylhexyl)Phthalate	E	E	E
Chrysene	E	E	E
Di n-Octyl Phthalate	E	E	E
Benzo(b)Fluoranthene	E	E	E
Benzo(k)Fluoranthene	E	E	E
Benzo(a)Pyrene	E	E	E
Indeno(1,2,3-cd)Pyrene	E	E	E
Dibenzo(a,h)Anthracene	E	E	E
Benzo(ghi)Perylene	E	E	E

## NOTES:

Blank space - compound analyzed for but not detected

E - analysis did not pass QA/QC requirements

J - compound present below the specified detection

ANALYTICAL DATA  
 LCP CHEMICALS, LINDEN, NJ  
 SAMPLING DATA : 7/27/84  
 CASE NUMBER : 3348

PESTICIDES/PCBs

SAMPLE NUMBER	B3750	B3751	B3752	B3754
MATRIX	WATER	WATER	WATER	WATER
UNITS	UG/L	UG/L	UG/L	UG/L
Alpha-BHC				
Beta-BHC				
Delta-BHC				
Gamma-BHC (Lindane)				
Heptachlor				
Aldrin				
Heptachlor Epoxide				
Endosulfan I				
Dieldrin				
4,4'-DDE				
Endrin				
Endosulfan II				
4,4'-DDD				
Endrin Aldehyde				
4,4'-DDT				
Methoxychlor				
Endrin Ketone				
Chlordane				
Toxaphene				
Arochlor-1016				
Arochlor-1221				
Arochlor-1232				
Arochlor-1242				
Arochlor-1249				
Arochlor-1254				
Arochlor-1260				

NOTES:

Blank space - compound analyzed for but not detected  
 E - analysis did not pass QA/QC requirements  
 J - compound present below the specified detection limit

ANALYTICAL DATA  
 LCP CHEMICALS, LINDEN, NJ  
 SAMPLING DATA : 9/27/84  
 CASE NUMBER : 3348

PESTICIDES/PCBs

SAMPLE NUMBER	B3785	B3786	B3787	B3788
MATRIX	WATER	WATER	SOIL	SOIL
UNITS	UG/L	UG/L	UG/KG	UG/KG
Alpha-BHC				
Beta-BHC				
Delta-BHC				
Gamma-BHC (Lindane)				
Heptachlor				
Aldrin				
Heptachlor Epoxide				
Endosulfan I				
Dieldrin				
4,4'-DDE				
Endrin				
Endosulfan II				
4,4'-DDD				
Endrin Aldehyde				
4,4'-DDT				
Methoxychlor				
Endrin Ketone				
Chlordane				
Toxophene				
Arochlor-1016				
Arochlor-1221				
Arochlor-1232				
Arochlor-1242				
Arochlor-1248				
Arochlor-1254				
Arochlor-1260				

NOTES:

Blank space - compound analyzed for but not detected  
 E - analysis did not pass QA/QC requirements  
 U - compound present below the specified detection limit

ANALYTICAL DATA  
 LCP CHEMICALS, LINDEN, NJ  
 SAMPLING DATA : 9/27/84  
 CASE NUMBER : 3348

PESTICIDES/PCBs

SAMPLE NUMBER	B3789	B3790	B3791
MATRIX	SOIL	SOIL	SOIL
UNITS	UG/KG	UG/KG	UG/KG
Alpha-BHC			
Beta-BHC			
Delta-BHC			
Gamma-BHC (Lindane)			
Heptachlor			
Aldrin			
Heptachlor Epoxide			
Endosulfan I			
Dieldrin			
1,4'-DDE			
Endrin			
Endosulfan II			
4,4'-DDD			
Endrin Aldehyde			
4,4'-DDT			
Methoxychlor			
Endrin Ketone			
Chlordane			
Toxaphene			
Arochlor-1016			
Arochlor-1221			
Arochlor-1232			
Arochlor-1242			
Arochlor-1248			
Arochlor-1254			
Arochlor-1260			

NOTES:

Blank space - compound analyzed for but not detected  
 E - analysis did not pass QA/QC requirements  
 J - compound present below the specified detection